Korean Economic and Industrial Outlook for 2020[1]

Economic Outlook and Analysis Division

1. Summary

The real economy of South Korea maintained a low growth rate in 2019, as exports continued to decline and domestic consumption growth stagnated while the decline in investments eased off. In the second quarter, private consumption grew by around two percent, lower than the previous year, while the decline in facility and construction investment slowed somewhat. The decline in exports (based on custom clearances) accelerated in 2019 due to the sluggish global economy, trade disputes, a decrease in semiconductor exports, and falling unit prices of exports. In 2020, the domestic

1 This article summarizes two papers of the Korea Institute for Industrial Economics & Trade: "Outlook for major industries in 2020" (Center for Growth Engine Industries, 2019) and "Economic Outlook for 2020" (Center for Economic Outlook and Statistical Analysis, 2019).

economy is expected to grow by 2.3 percent as exports uptick despite the sluggish Chinese economy and other uncertainties in external conditions and stagnant investment is alleviated through government policy and gradual consumption growth.

In 2020, the prospects for the 12 major industries can be summarized as follows: favorable for the semiconductor and rechargeable battery industries, improved for shipbuilding, and stagnant for the automobile, display, and materials (including petrochemicals) industries. As the global economy picks back up and IT and machinery industry exports rise, supported by the stabilized market and unit prices of semiconductor memory, Korean exports will recover from a 12.1-percent drop in 2019 to a 2.3-percent increase in 2020. However, export growth in the remaining 11 major industries, excluding the semiconductor industry, will reach just at 0.6 percent in 2020, maintaining a level of sluggishness similar to that of the previous year. Due to a weak recovery in exports and domestic demand, the recovery of production is expected to be meager in most industries, with the exception of the semiconductor and rechargeable battery industries. While production is projected to increase in the semiconductor and rechargeable battery industries (in which demand is expected to grow) production in appliances, ICT devices and displays will continue to decline despite the gradual recovery from the slowdown. Production in the automobile industry is expected to decline due following the drop in exports and adjustments to the output of foreign-invested companies. Slumping demand industries will lead to stagnant production growth in steel, petrochemicals, textiles and other materials industries.

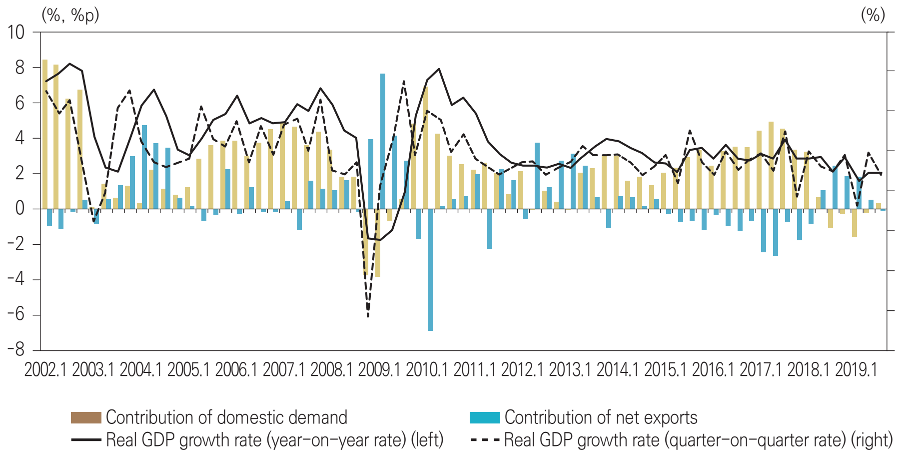
2. Macroeconomic Outlook

(1) Overview of Domestic Economic Conditions

Korea's economy is maintaining a low growth rate due to a protracted decline in exports and slow domestic consumption even as the decline in investments slows. In the second quarter, private consumption rose to the two-percent range, which is still lower compared to the previous year, but the decline in facility and construction investment has been leveling off. The decline in exports (based on custom clearances) accelerated gradually in 2019 due to the global economic slowdown, trade disputes, and falling semiconductor exports and unit prices.

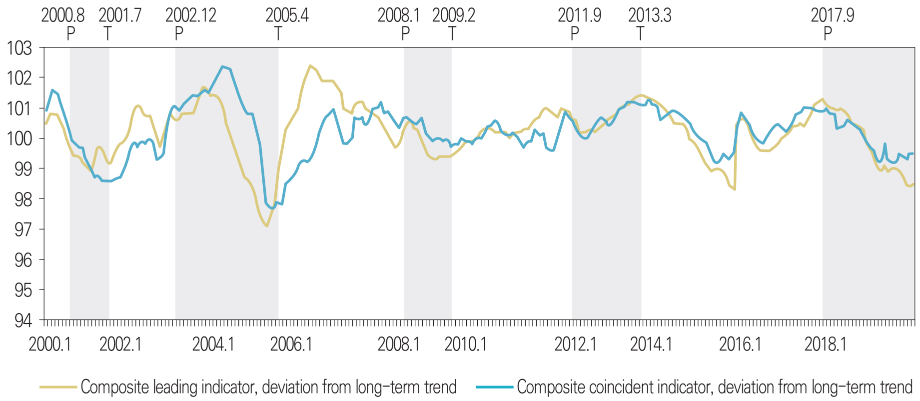
The growth rate of production in the mining and manufacturing industries has been in continuous decline since 2017, while the declining trend in service industry production has somewhat eased off.

Figure 1. Real GDP Growth Rate and Contribution to Growth by Sector



Source: Bank of Korea.
Note: Domestic demand is the sum of private consumption and gross fixed capital formation.

Figure 2. Trends of the Composite Index



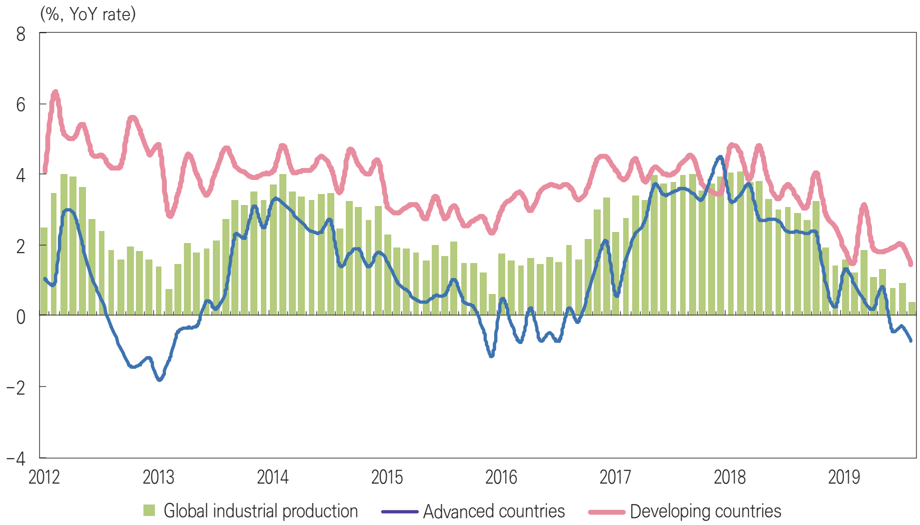
Source: Statistics Korea.

(2) Outook for External Conditions

The global real economy displayed noticeable signs slowdown in 2019, particularly in developed nations, while developing economies fell off somewhat after a temporary rebound. Among developed nations, the United States is showing relatively solid growth with its expansionary fiscal policy and improvements in job conditions, but growth in Japan and the Eurozone has been slow due to the effects of sluggish exports. In terms of developing countries, China's growth rate has been falling due to its sluggish domestic demand and exports, while Brazil and Russia are also exhibiting stagnant growth trends due to lower prices of raw materials. After a temporary rebound, the growth rate of overall production around the world has been falling steadily, dropping to the zero-percent range for the first time since the end of 2015.

In 2020, the global economy will see a gradual increase in the growth rate, owing to slow growth in developed economies and stagnation in developing economies. Growth in the United States is stall as the effects of its fiscal policy dissipate and global production, exports and investment slows amid its trade disputes with major countries. The growth of Japan and the Eurozone

Figure 3. Global Industrial Production



Source: CPB.

will remain at the same levels as the previous year, lacking momentum for an upward turn, and China's growth rate is expected to be limited to less than six percent due to the weakness of internal and external conditions despite the government's efforts to boost the economy. Other major variables of the global economy include global protectionism, the recovery of the manufacturing industry, changes in the monetary policies of central banks and a number of political uncertainties (such as political instability in the Middle East, the presidential election in the United States and Brexit, among others).

As for the international oil price, the price of Dubai crude plunged to about USD 42 per barrel in December 2018, after which it took an upward turn, peaking at about USD 70 per barrel in May 2019, and has currently fallen to the USD 60-per-barrel range. In 2020, the international oil price is expected to remain in the low USD 60-per-barrel range, similar to this year. The United States' increased production of crude oil will limit the rise of the international oil price, despite OPEC's agreement to extend production cuts and the conflict between the United States and Iran. Moreover, the world economy, spearheaded by developing countries, is expected to improve slightly in the second half of the year.

The average annual international oil price (Dubai crude) for 2020 is projected to be USD 62.4, down 0.5 percent year on year. Specifically, the price will rise from USD 60.6 (down 8.4 percent year on year) in the first half of 2020

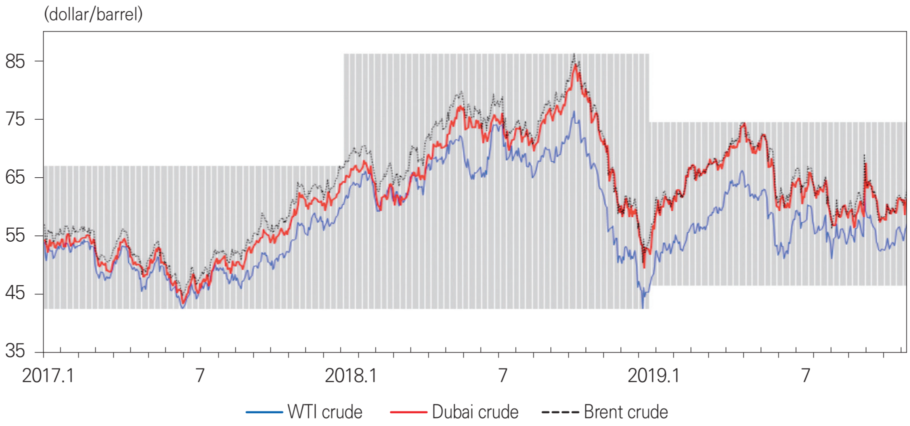
Table 1. Overview of the World Economic Outlook

Unit: %, YoY rate

	2018			2019			IMF		OECD	
	First half	Second half	Year	Q1	Q2	Q3	2019	2020	2019	2020
Global economy			3.6				3.0	3.4	2.9	3.0
Advanced economies	2.8	2.0	2.4	1.7	1.6	–	1.7	1.7	–	–
United States	2.8	3.0	2.9	2.7 (3.1)	2.3 (2.0)	2.0 (1.9)	2.4	2.1	2.4	2.0
Japan	1.4	0.2	0.8	0.9	0.9	1.3	0.9	0.5	1.0	0.6
Eurozone	2.3	1.4	1.9	1.3	1.2	1.1	1.2	1.4	1.1	1.0
Developing economies			4.5				3.9	4.6	–	–
China	6.8	6.5	6.6	6.4	6.2	6.0	6.1	5.8	6.1	5.7
Trade			3.6				1.1	3.2	–	–

Source: IMF World Economic Outlook (October 2019), OECD Interim Economic Outlook (September 2019).

Figure 4. Trend in the International Oil Price



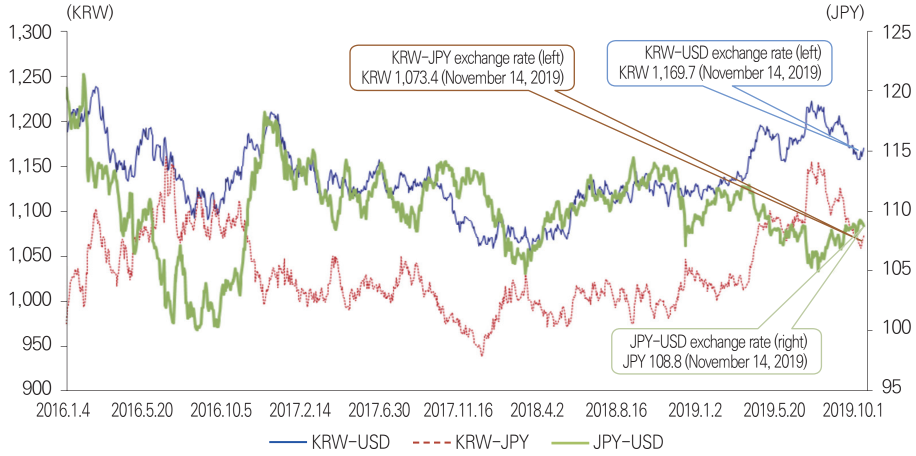
Source: Korea National Oil Corporation (KNOC).
Note: The shaded area represents annual price change ranges (minimum to maximum).

to USD 64.8 (up 8.2 percent year on year) in the second half of the year.

In 2019, the KRW-USD exchange rate continued its positive upward trend, driven by the intensifying trade conflict between the United States and China, the slowdown of the global economy and an increase in the United States' interest rate, but it is now declining amid expectations that the United States and China will reach a trade agreement. In 2020, the KRW-USD exchange rate will maintain a general downward trend, exhibiting a gradual decline with slight fluctuations. There is persistent concern over a slowdown in both the Korean economy and global economy due to the prolonged trade dispute between the United States and China, and the sluggish Chinese economy is putting downward pressure on the Chinese yuan (CNY). As a result, the United States dollar (USD) is expected to remain strong for the foreseeable future. However, increased concern over an economic recession in the United States due to the trade war between the United States and China and the possibility of an interest rate reduction to boost the economy prior to the presidential election in the United States is expected to limit the strength of the dollar.

In 2020, the annual average KRW-USD exchange rate is expected to be KRW 1,168 (up 0.01 percent year on year), with the KRW-USD exchange rate averaging around KRW 1,175 in the first half of the year (up 2.5 percent year on year) and KRW 1,160 in the second half of the year (down 2.4 percent year on year).

Figure 5. Foreign Exchange Rates of Major Currencies



Source: Bank of Korea.

(3) Korean Economic Outlook for 2020

The South Korean economy is expected to grow by 2.3 percent in 2020, with exports taking an upward turn as the global economic decline tapers off and the semiconductor market shows some signs of vitality despite uncertain external conditions. It should be further buoyed by a modest increase in consumption and a slight uptick in investments due to the effects of government policy. Although external conditions remain uncertain, with the trade dispute between the United States and China and the slowdown of the Chinese economy, exports are expected by grow by 2.3 percent, owing largely to the base effect of the reduction in 2019, the declining pace of global economic slowdown and small improvements in the global semiconductor market.

Major external variables that are poised to influence the Korean economy are: the intensification of international trade conflicts, changes in the currency policies of major countries and persistent political uncertainty in emerging markets. Major internal variables include: the Bank of Korea's reduction of the interest rate, the effects of government policy and the recovery of the manufacturing sector.

Although qualitative improvements in employment are lacking, general employment indicators will improve steadily in 2020, and expectations of

Table 2. Overview of the Korean Macroeconomic Outlook

Unit: %, YoY rate, USD 100 million

	2019			2020		
	First half	Second half	Year	First half	Second half	Year
Real GDP	1.9	2.1	2.0	2.2	2.3	2.3
Private consumption	2.0	1.9	2.0	1.9	2.1	2.0
Construction investment	-5.4	-2.3	-3.8	-2.1	-1.5	-1.8
Facility investment	-12.2	-1.7	-7.0	2.9	4.1	3.5
Custom-cleared exports (USD 100 million, %)	2,712 (-8.6)	2,746 (-10.9)	5,458 (-9.8)	2,753 (1.5)	2,844 (3.6)	5,597 (2.5)
Custom-cleared imports (USD 100 million, %)	2,525 (-4.9)	2,518 (-6.6)	5,043 (-5.8)	2,570 (1.8)	2,640 (4.8)	5,210 (3.3)
Trade balance	187	228	415	183	204	387

Source: Korea Institute for Industrial Economics and Trade (KIET).

sustained low interest rates and the mitigation of external uncertainties will limit private consumption to the same level of growth as the previous year (two percent). However, the negative effects of the United States-China trade dispute are expected to attenuate, while various government policies for expanding household income, increases in real income due to low prices and an amelioration of household debt repayment burdens owing to continued low interest rates are all expected to increase private consumption.

Facility investment is project to take an upward turn, owing to the base effect of the slump that occurred in the previous year and expectations of recovery in the semiconductor industry. As the decline in the cost of NAND flash semiconductors is expected to slow and the cost of DRAM is expected to recover gradually after reaching a low point in the first half of 2020, facility investment in the semiconductor industry will see an uptick well. Investment in the general machinery industry is also expected to increase, owing to government policies focused on strengthening the materials, parts, and equipment industries, while an increase in the establishment of production facilities is expected in the petrochemical industry, due to oil refinery companies entering the upstream market. Since the growth rate of the value of received machinery orders and pressure to adjust facility investments are near zero, the possibility that facility investment will drop again is not very high. In 2020, facility investment is expected to increase by 3.5 percent overall, rising by 2.9 percent in the first half of the year and 4.1

percent in the second half of 2020 year on year.

A significant rebound in construction investment is unlikely this year, due to the effects of real estate policy but the drop-off in construction investment is expected decelerate compared to the previous year, owing to the continued increase in engineering construction on the back of on the government's expansionary budget. With the government increasing its budget to boost the economy through the effects of social overhead capital (SOC), urban renewal projects, and projects promoting balanced national development, the number of orders for public construction is expected to rise. Construction investment is expected to record a decline of 1.8 percent in 2020 (down 3.8 percent compared to the previous year), with a drop of 2.1 percent in the first half of the year compared to the same period of the previous year and a projected decline of 1.5 percent in the second half of the year.

In 2020, exports are expected to increase by about 2.5 percent due to the base effect of the decrease in exports in 2019, a tapering-off of the global economic slowdown and mild improvement in the global semiconductor market despite uncertainties in external conditions, such as the United States-China trade dispute and the slumping Chinese economy. The economic slowdown in China, which is South Korea's largest trading partner, is expected to continue into 2020 due to the impact of the United States-China trade dispute but global economic and trade growth — which declined drastically — in 2019 should recover slightly in 2020. Semiconductor exports fell significantly in 2019 but are expected to recover. In a recent announcement from August 2019, World Semiconductor Trade Statistics (WSTS), which provides market data and forecasts for the semiconductor industry, predicted that the size of the world semiconductor market, having contracted by 13.3 percent in 2019 year on year, will expand by 4.8 percent in 2020. Global economic stimulus packages, such as quantitative easing in major countries, will have a positive effect on South Korean exports, but adverse factors placing downward pressure on the unit prices of exports, such as intensifying global competition, slackening international oil prices and weak economic growth globally are expected to cap export recovery to a narrow range.

The base effect of the decrease in 2019 and the transition of exports to an upward trend will lead imports to recover in 2020, but the low growth rate of the Korean economy and decline in the international oil price are expected to limit growth to only 3.3 percent. In 2020, the trade surplus will be USD 37.9 billion, down from USD 41.5 billion in 2019. Even if exports and imports both pick up, trade is expected to fall short of 2018 levels (USD 1.1452 trillion).

3. Overview of Major Industries

(1) Major Changes in 2020 and Their Impact on Industries

In 2020, there will be a mix of both favorable and adverse global conditions, including: the global economic slowdown slacking off, stabilization in the semiconductor market, fluctuating unit prices of goods, intensifying competition, and continued trade conflicts between countries.

First, the slowdown of the global economy is subsiding, which bodes well for improvements in final goods, including consumer goods, and the accompanying increase in demand for materials and parts is expected to have a positive impact on the exports of major Korean industries. Korean exports are expected to rebound but not to the usual growth levels due to sluggish economic growth in the United States and China, which are major importers of Korean goods, while Japan and the Eurozone are expected to maintain the same economic level as the previous year.

In 2020, changes in the unit prices of goods are expected to fluctuate by industry. The direction of the unit price of semiconductors, which contributed most to the sluggishness of exports in the previous year, is expected to have the greatest influence on any changes in Korean exports. The semiconductor industry will likely have a positive effect on exports, owing to increasing global demand and gradual alleviation of the oversupply problem, which will stabilize unit prices. The automobile and appliance industries are also expected to have positive impacts on exports through increases in value added and the enhancement of products, which will increase the unit prices of goods. However, as the international oil price and KRW-USD exchange rate are expected to remain at the same levels as the previous year,

Table 3. Weather Chart of Industry Prospects for 2020

		Exports	Production	Domestic demand	Imports
Machinery	Automobile	-5 to 0%	-5 to 0%	0 to 5%	5 to 10%
	Shipbuilding	more than 10%	0 to 5%	more than 10%	more than 10%
	General machinery	0 to 5%	0 to 5%	0 to 5%	0 to 5%
Materials	Steel	-5 to 0%	0 to 5%	-5 to 0%	0 to 5%
	Refined oil	0 to 5%	0 to 5%	0 to 5%	-5 to 0%
	Petrochemical	-10 to -5%	-5 to 0%	-5 to 0%	-5 to 0%
	Textile	-5 to 0%	-5 to 0%	0 to 5%	0 to 5%
IT manufacturing	Appliance	-5 to 0%	-5 to 0%	-5 to 0%	0 to 5%
	ICT device	-5 to 0%	-5 to 0%	0 to 5%	5 to 10%
	Semiconductor	5 to 10%	more than 10%	more than 10%	5 to 10%
	Display	-5 to 0%	-5 to 0%	-10 to -5%	-10 to -5%
	Rechargeable battery	5 to 10%	5 to 10%	more than 10%	more than 10%

Note: 1) Prospects: Legends are based on projected rates of increase from the previous year.
: less than -10%, : -10 to -5%, : -5 to 0%, : 0 to 5%, : 5 to 10%, : more than 10%.
2) The production and demand of the automobile industry is based on finished cars; for shipbuilding, on ships built; for steel, on steel materials; for refined oil, on oil products; and for petrochemicals, on the three types of derivatives. The production and demand of all other industries are based on monetary values.
3) Exports and imports of all industries are in U.S. dollars.

the above-stated impacts on the unit prices of goods will likely be limited.

Steel, refined oil, petrochemicals, ICT devices and displays are expected to have a negative impact on exports due to downward pressure on unit prices caused by facility expansion and increased production in China resulting creating oversupply problems. On the other hand, the oversupply of goods is expected to continue in the automobile industry due to stagnating demand resulting from sluggish growth in developed countries and emerging markets.

In 2020, the trade dispute between the United States and China will remain uncertain, and most of the major industries will have an adverse effect on exports due to the stagnant global economy and shrinking demand. There is also the possibility of an increase in the demand for facility investment following the relocation of production bases from China to elsewhere, and there may be some benefits from the 5G communication device and smartphone sectors but they will fall far short of offsetting the overall decrease in demand.

The steadily strengthening global environmental measures will have a direct impact on short-term export performance, functioning as protective trade barriers. However, there exist both opportunity factors and risk factors, depending on the characteristics of the industry in question. Various environmental regulatory measures gradually change the supply and demand structure and competitiveness of products, thus making it important to take an advantageous position in the eco-friendly product market in preparation for environmental regulations and to use that position as an opportunity to strengthen competitiveness. In terms of industrial conditions, the trend of strengthening fuel efficiency regulations for automobiles in the European Union (EU) is reducing the supply of automobiles, which will likely have a negative impact on the automobile and steel industries; however, the increase in demand for electric vehicles (EVs) is expected to boost exports of rechargeable batteries. In addition, the environmental regulations of the International Maritime Organization (IMO), which will go into effect in January 2020, will limit the sulfur content of fuels for ships to 0.5 percent, thereby increasing the demand for low-sulfur fuels and diesel fuel, acting as a favorable factor in the refined oil industry. There will also be opportunities in the shipbuilding industry, as mandatory installations of ballast water management systems (BWMS) on ships increase in number while old ships are decommissioned and early orders for energy-efficient Korean ships are placed, all accompanied by the expansion of eco-friendly materials and equipment. The increase in demand for new eco-friendly products production facilities will also have a positive impact on the general machinery industry.

In terms of domestic conditions, private consumption in automotive, textiles, appliances, and other consumer goods industries and related materials and parts industries is expected to remain sluggish in 2020, with private consumption maintaining the same levels as the previous year. In addition, despite the low level of growth of private consumption, imports of consumer goods will increase dramatically, limiting the possibility that a virtuous cycle causes domestic production to expand.

In 2020, domestic facility investment by major industries is expected to increase compared to the previous year, owing to the expectations of the base effect, increased exports, and improvements in the semiconductor industry, in addition to investment in the sophistication of the display industry. However, facility investment in the automobile, textile, and appliance industries, which are expected to show poor exports and domestic demand, will likely continue its downward trend as in the previous year. Construction investment is also expected to continue its decline, negatively impacting related downstream industries, including the steel, appliance, and textile industries.

An expansion of overseas investment is expected to have negative effects. These include a weakening of the domestic production base, decreased exports and increased imports in the IT industry. Some positive effects are also expected, such as increased demand for Korean products manufactured at overseas factories. Factors that are expected to limit domestic production and export growth are: the establishment of new companies overseas for the production of export goods and increasing contract manufacturing in the appliance industry; the relocation of LG Electronics' smartphone manufacturing companies to Vietnam and the expansion of overseas smartphones and parts production in the ICT device industry and finally the scheduled mass-production of LG's OLED factory in Guangzhou in the display industry.

On the other hand, positive effects are also expected, such as an increase in the demand for parts with the opening of overseas factories in the automobile industry; an increase in facility demand following the expansion of overseas investments in demand industries in the general machinery industry and finally the vertical integration and reduction of raw material costs through the expansion of basic distillate production facilities in the petrochemical industry.

The minimum wage will increase by 2.9 percent in 2020, bringing it to KRW 8,590. It is the third-lowest increase in Korean history. Companies with 50 to 300 employees were expected to implement and enforce a maximum 52-hour work week system starting in 2020, but the pace of the system's implementation was slowed by the introduction of a trial period in which work hours were extended. This will mitigate any expected negative impact on major manufacturing industries in 2020, but future responses to the 52-hour work week and productivity enhancement remain uncertain, burdening the manufacturing sector overall.

(2) Outlook for Major Industries in 2020

Exports in 12 major industries in Korea are expected to pick up in 2020 as growth reaches 2.3 percent owing to decelerating global economic decline and stabilizing unit prices of memory semiconductors. This growth marks a turnaround from the 12.2-percent decrease recorded in 2019. However, the exports of 11 major industries, excluding the semiconductor industry, will remain sluggish in the first half of 2020, with a drop of 0.5 percent year on year before bouncing back in the second half of the year with 1.6 percent year on year growth. This limits the overall annual increase to 0.6 percent, similar to the year previous.

Automobile exports are expected to be sluggish, but exports in the shipbuilding and general machinery industries trend upwards, from a drop of 0.3 percent in 2019 to an increase of 3.8 percent. Automobile exports are expected to drop by 0.4 percent year on year due to the effect of foreign-invested companies adjusting their export volumes in consideration of the sluggish global demand for automobiles and restructuring of parent companies. Shipbuilding exports are expected to increase significantly by 21.2 percent compared to the previous year, in line with the delivery of high-cost LNG carriers and container ships ordered between 2016 and the first half of 2019. Exports in the general machinery industry are expected to show a 2.5-percent increase compared to the previous year, driven by the increased demand for construction equipment and facility investment due to improvements in the European manufacturing industry and the expected expansion of investment in infrastructure in countries such as Vietnam and India.

In the materials industry, exports will continue declining, from a drop of 11.3 percent in 2019 to a drop of 2.1 percent in 2020, due to the international oil price maintaining the same level as in 2019, limiting the increase in export unit prices, as well as the delay in demand recovery resulting from global oversupply. Steel exports are also projected to fall by 0.5 percent compared to the previous year, as the increase in the demand for steel in major export markets, including the United States, EU, and China is projected to be very modest, and import regulations, oversupply, and the prolonged bearishness of the international steel price. Exports of refined oil are expected to uptick, rising by 0.4 percent year on year, owing to the improved balance in the supply and demand of petroleum products following a slowing construction of new oil refinery facilities. Once the demand for low-sulfur fuels and diesel fuel begins to increase starting in the first quarter of 2020 with the introduction of IMO 2020, which will be implemented as part of stronger environmental regulations, oil refinery companies are expected to see improvements in their performance following an increase in refining margins. Exports of the petrochemical industry are projected to decrease by 5.1 percent compared to the previous year, due to the prolonged decline in the unit price of exports caused by oversupply and declining demand stemming from concerns over the ongoing the trade dispute between the United States and China. Textile exports are expected to decrease by 4.0 percent compared to the previous year as a result of the delayed recovery of global textile demand, the intensification of global competition, and restricted increases in the unit price of exports.

In the IT industries, after plummeting 21.2 percent in 2019 year on year, exports are projected to increase by 4.7 percent in 2020, driven by the stabilizing semiconductor prices, continued demand for rechargeable batteries and a significant alleviation of the downward trend in the ICT and display industries. Exports of semiconductors are expected to increase by 8.3 percent compared to the previous year, owing to the slowdown in the decline of unit prices as oversupply of memory semiconductors eases and demand for 5G communication and data centers grows. Exports in the rechargeable battery industry are projected to increase by 4.1 percent year on year, buffeted by increased global demand for mid-sized rechargeable batteries and parts for which Korea holds key technologies. Exports of ICT devices are expected to continue declining in line with increased overseas production and intensifying global competition, but the recovery of SSD exports and growth of 5G communication worldwide are expected to limit the decline, to 1.6 percent drop. China's new facilities and increased OLED production is expected to lead to an oversupply problem and a decrease in display prices, inhibiting export growth by 2.7 percent compared to the previous year. However, the popularization of premium phones, the increased number of countries offering 5G service and increases in the use of small- and medium-sized OLEDs for foldable phones are expected to largely offset the decline in exports. Exports of appliances will also decrease by 1.7 percent year on year, owing to increased overseas production, intensifying competition with China and increased local production to avoid trade protectionism, but the drop will be limited.

In most of the 12 major industries in Korea, excluding the semiconductor and rechargeable battery industries, production recovery is expected to be slow, due to the poor conditions for the recovery of exports and domestic demand.

In the machinery industries, automobile production will continue falling, while production in the shipbuilding industry is expected to increase year on year as a result of the increase in demand for semiconductor equipment. Production in the automobile industry is expected to fall by 1.5 percent, driven down by the decline in exports caused by sluggish global sales and production volume adjustments made following the changes to the global sales strategies of foreign-invested companies. Production in the shipbuilding industry is expected to grow by 3.5 percent year on year, as there will be an increase in the construction of LNG carriers and container ships for which orders were received during the recovery period. Production in the general machinery industries is expected to rise by 1.7 percent compared to the previous year due to the base effect, the increase in exports and increased facility investment in the semiconductor and display industries. Samsung ordered machinery for DRAM production facilities for its second Pyeongtaek factory and second Sian factory and has plans for a phased facility expansion; it also plans to invest in QD displays. LG Display plans to expand its manufacturing plants in Paju and Guangzhou and invest in the mass-production of 10.5-generation fabrication in 2021, which will all have positive impacts on the production volume of general machinery.

Production in the materials industries is expected to drop slightly year on year with the expected increase in refined oil production and decrease in the production of the petrochemical and textile industries. Steel production is projected to rise by 0.1 percent compared to the previous year as a result of a slight increase in the production of medium-thickness steel plates and high-value-added products, despite the drop in the price of steel goods caused by a slumping construction business and increases in imported materials. Although there are no investments in new large-scale facilities for Korean oil refineries, increased investment in advanced facilities is expected to raise the production of refined oil by 1.1 percent year on year. Production in the petrochemical industry will decrease by 2.5 percent compared to the previous year as a result of suppliers' downward adjustment of the utilization rate of the expanded production facilities following the price drop caused by the oversupply. Textile production is also expected to drop by one percent due to the prolonged slump in domestic demand and exports and expanded overseas investment.

Production in the IT industries is expected to continue declining, despite the turnaround in semiconductor production and continued favorable conditions for the production of rechargeable batteries and gradual improvements in the sluggish appliance, ICT device, and display industries. Semiconductor production is expected to rise by 10.3 percent compared to the previous year due to the transition to fine processing and increased demand for semiconductors following the expanded distribution of digital communication and data processing devices. Production in the rechargeable battery industry will also continue its growth, increasing by 8.8 percent compared to the previous year, backed by the continued increase in exports, increased domestic demand for rechargeable batteries for EVs, and increasing preference for reliable rechargeable batteries made in Korea in response to people's safety concerns regarding wireless household items. Meanwhile, the production of ICT devices is expected to decrease by two percent compared to the previous year, owing to increased domestic demand and the recovery of SSD exports (despite sluggish overall exports) and an increase in the overseas production of smartphones. Display production is also expected to record a 3.9-percent drop compared year on year due to the effects of the continued drop in LCD prices and the elimination of LCD production lines as the industry transitions to OLED production. In addition, sluggish domestic investment, increasing overseas investment, re-importation and imports of highly cost-effective Chinese products are expected to cause a 1.4-percent decrease in appliance production year on year.

In 2020, 12 major industries in Korea are expected to exhibit low growth in terms of domestic consumption and investment. Due to the lack of clear upward momentum, a vigorous recovery seems unlikely.

Although domestic demand in the machinery industries will begin to trend upwards, owing to the base effects in the automobile and general machinery industries and demand for new products and advanced equipment, the current decline is expected to continue. Domestic demand in the automobile industry is expected to grow by 1.4 percent year on year, supported by the base effect of the previous year's poor performance and strong sales of new models. Domestic demand in the general machinery industries is also expected to rebound by 1.2 percent year on year, driven by increased investment in infrastructure, the automation of production, more efficient uses of energy and the transition of production processes to more environmentally-friendly processes.

Although a slight increase in domestic demand in the refined oil and textile industries is expected, domestic demand in the materials industry should drop off somewhat compared to the previous year due to shrinking domestic demand in the steel and petrochemical industries caused by slack in major demand industries. Market expansion with the vitalization of e-commerce, sustained price declines and increased demand for low- to mid-priced imported materials are expected to drive up domestic demand for textiles by 1.2 percent year on year. Domestic demand in the refined oil industry is expected bounce back by 0.9 percent compared to the previous year, owing to the expansion of the government's economic stimulus package and an increase led by the commercial and transportation sectors. The slump in the construction, automobile, appliance, and ICT device industries is expected to suppress domestic demand for petrochemicals down by two percent year on year, while the continued slump in the automobile, construction, and other demand industries will lead to a 0.3-percent decrease in domestic demand for steel compared to the previous year.

Domestic demand in the IT industries is expected to improve compared to the previous year, as domestic demand in the semiconductor, ICT device, and rechargeable battery industries increases even as domestic demand in the display and appliance industries remains stagnant. Domestic demand in the rechargeable battery industry is expected to grow by 12.3 percent compared to the previous year, as a result of the government's EV market expansion and increased demand for wireless appliances. Domestic demand in the semiconductor industry is expected to rise by 11 percent year on year, due to the increase in demand for 5G communication-related semiconductors and increased imports of special-purpose semiconductors. The increase in replacement demand for 5G phones and communication equipment following the rollout of 5G service nationwide, replacement demand for Windows 10 and increasing demand for gaming PCs and laptops are expected to generate 2.8-percent growth in domestic demand in the ICT device industry compared to the previous year. Despite the release of new home appliances and the growing popularity of the rental business model, domestic demand in the appliance industry will see a 0.4-percent decline year on year due to the continued decline in the consumption of durable goods since 2019. The price decline in the wake of China's production expansion is expected to drive domestic demand in the display industry down by 5.8 percent compared to the previous year, although the volume of goods will likely increase as a result of the increased distribution of premium smartphones.

Imports of the 12 major industries are expected to exhibit upward momentum, recording a 3.8-percent increase compared to the previous year from a 1.5-percent year-on-year drop in 2019, owing to increased imports in the machinery and IT industries.

Machinery imports are expected to grow by five percent in 2020 year on year, a substantial increase after a 3.6-percent year-on-year drop in 2019, due to the significant increase in imports in the transportation equipment sector, including the automobile and shipbuilding industries. Despite the boycott of Japanese products following deteriorating relations between Korea and Japan, automobile imports are expected to rise by 7.3 percent compared to the previous year, given the increase in demand for newer models of automobiles with a high market share in Korea and increasing imports of related parts. Imports in the shipbuilding industry are also expected to jump by 24.7 percent year on year, driven by the increase in the inflow of small- and medium-sized vessels Korean shipping firms have ordered from

China and increased construction of LNG carriers. Also, the expansion of facility investments in the semiconductor and display industries, in addition to the rise in demand for industrial robots and related equipment as automation takes hold in the manufacturing sector is expected to increase imports of the general machinery industry by 1.9 percent compared to the previous year.

Imports in materials industries are expected to recover from their 5.8-percent year-on-year decrease in 2019 with a 0.9-percent increase in 2020, as the import unit price of refined oil products declines and demand for low- to mid-priced imports increases. Steel imports are projected to increase by three percent compared to the previous year due to the inflow of Chinese steel products with competitive prices and quality and low-cost Southeast Asian steel. Imports of the textile industry are also expected to increase by 4.3 percent, driven by the decrease in the unit price of imports, expanded reimportation, increased imports of textile materials and increased online

Table 4. Forecast for Major Industries in 2020

Exports		Production		Domestic demand		Imports	
Industry	Change (%)	Industry	Change (%)	Industry	Change (%)	Industry	Change (%)
Shipbuilding	21.2	Semiconductor	10.3	Shipbuilding	22.2	Shipbuilding	24.7
Semiconductor	8.3	Rechargeable battery	8.8	Rechargeable battery	12.3	Automobile	7.3
Rechargeable battery	4.1	Shipbuilding	3.5	Semiconductor	11.0	Semiconductor	7.1
General machinery	2.5	General machinery	1.7	ICT device	2.8	ICT device	6.3
Refined oil	0.4	Refined oil	1.1	Automobile	1.4	Rechargeable battery	5.5
Automobile	−0.4	Steel	0.1	General machinery	1.2	Textile	4.3
Steel	−0.5	Textile	−1.0	Textile	1.2	Steel	3.0
ICT device	−1.6	Appliance	−1.4	Refined oil	0.9	General machinery	1.9
Appliance	−1.7	Automobile	−1.5	Steel	−0.3	Appliance	1.6
Display	−2.7	ICT device	−2.0	Appliance	−0.4	Refined oil	−0.9
Textile	−4.0	Petrochemical	−2.5	Petrochemical	−2.0	Petrochemical	−4.6
Petrochemical	−5.1	Display	−3.9	Display	−5.8	Display	−8.9
Total of 12 industries	2.3					Total of 12 industries	3.8

transactions. Although import volumes are expected to increase as refined oil trends upwards, total imports are expected to fall by 0.9 percent compared to the previous year due to the decline in the unit price of imports in the first half of the year. Imports in the petrochemical industry are expected to show a 4.6-percent decrease year on year due to sluggish domestic demand and continued decline in the unit price of imports.

In the IT industries, imports are projected to go up by 5.5 percent in 2020 compared to the previous year, an increase of the 3.5 percent year-on-year figure from 2019 as a result of increasing volumes of low- to mid-priced Chinese products and parts and growing in imports of new industries, including system semiconductors and 5G communication technologies, among others. Imports in the semiconductor industry are expected to rise by 7.1 percent compared to the previous year, as the demand for system semiconductors that are difficult to manufacture in Korea, such as vehicle semiconductors, power semiconductors and sensors increases. Imports in the ICT device industry are expected to see growth of 6.3 percent compared to the previous year, due to increased demand for communication devices and the latest smartphones made by foreign companies, greater inflows of portable PCs and CPUs and other computer components and increasing re-importation of Korean products manufactured overseas. Imports of the rechargeable battery industry will increase by 5.5 percent compared to the previous year, owing to the selection of highly cost-efficient finished and partial products made in China. Appliance imports are also expected to rise by 1.6 percent year on year due to stabilizing domestic demand, an increase in highly cost-efficient Chinese products and the re-importation of products manufactured overseas. Lastly, decreasing display import and continued price declines resulting from the withdrawal of smartphone factories will lead to a drop of 8.9 percent in imports display imports, continuing a downward trend.

Economic Outlook and Analysis Division | ojs@kiet.re.kr