

Regional Economic Report

June 2018



THE BANK OF KOREA

Regional Economic Report

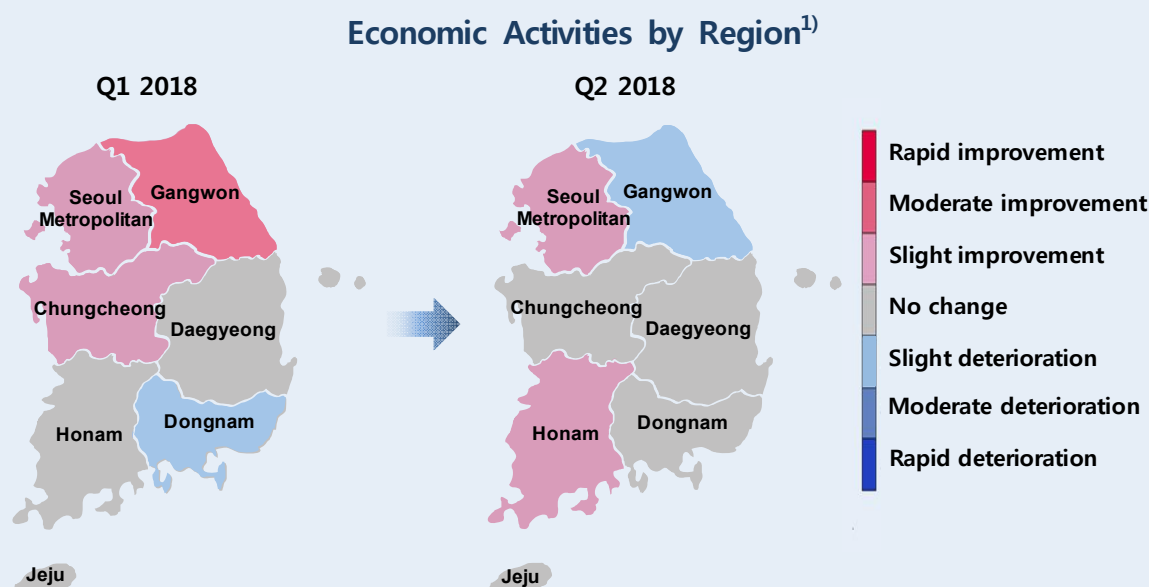
June 2018

This report, a condensed English version of the Regional Economic Report published in Korean, summarizes recent developments in regional economic activities based on information gathered by the 15 regional branches of the Bank of Korea from businesses and other sources within each region between late May and mid-June 2018. The contents of this report may not necessarily agree with the official statistics to be released later by the Bank of Korea and Statistics Korea.

Executive Summary

Overview

Survey information on regional economic activities collected by the 15 regional branches of the Bank of Korea from businesses and other sources within each region indicates that in the second quarter of 2018 economic activities maintained their pace of improvement in the Seoul Metropolitan region and showed moderate improvement in the Honam region. However, economic activities weakened slightly in the Gangwon region due to the base effect of the PyeongChang 2018 Olympic Winter Games, while remaining flat in the Dongnam, Chungcheong, Daegyeong, and Jeju regions.



Note: 1) Assessed based on regional information regarding manufacturing and services production, employment, and financial conditions gathered by monitoring regional businesses and other sources

According to the monitoring results, regional economic conditions are expected to show signs of moderate improvement in the Seoul Metropolitan, Chungcheong, Gangwon, and Jeju regions, largely driven by private consumption and exports, and to remain unchanged overall in the other regions.

Production

Manufacturing production in the second quarter of 2018 was found to have increased in the Seoul Metropolitan and Gangwon regions, to have declined in the

Dongnam and Daegyeong regions, and to have remained unchanged in all other regions. By industry, production in semiconductors continued to increase, while that in display panels and mobile phones was sluggish. Production in petrochemicals & oil refining and machinery & equipment generally showed an uptrend but remained flat in some regions. Iron & steel and shipbuilding production either remained unchanged or decreased, depending on the region. In the automobile industry, production was found to vary across regions depending on their performance in sales of fully built automobiles, with exports of auto parts recovering moderately. **Services production** is reported to have increased in the Chungcheong region led by wholesale & retail trade and restaurants & hotels. The Honam region saw a rise in wholesale & retail trade and transportation services while the Jeju region saw an increase in healthcare services and tourism-related transportation services. In the Gangwon region, on the other hand, services production declined, as a decrease in the number of domestic and foreign tourists after the closing of the PyeongChang 2018 Olympic Winter Games led to a reduction in related services. Services production remained unchanged in the other regions.

Production in Q2 2018 by Region¹⁾

	Manufacturing Production	Services Production
Seoul Metropolitan	▲	◇
Dongnam	▼	◇
Chungcheong	◇	▲
Honam	◇	▲
Daegyeong	▼	◇
Gangwon	▲	▼
Jeju	◇	▲

Note: 1) Markers indicate the direction of change in the levels of manufacturing and services production compared to the previous quarter. ▲ represents an increase, ◇ no change, and ▼ a decrease.

According to the monitoring results, manufacturing production is likely to remain unchanged in the Honam and Daegyeong regions, and to increase in the rest of the regions. By industry, production in semiconductors and petrochemicals & oil refining is expected to continue to grow, while that in iron & steel, display panels, mobile phones, and shipbuilding is projected to either remain flat or decline. **Services production** is predicted to rise in most regions, particularly in wholesale & retail trade, restaurants & hotels, transportation, and tourism services, boosted by the start of the peak tourist season, by an increased number of foreign tourists, and by eased geopolitical risks.

Demand

Private consumption is found to have increased in the Seoul Metropolitan, Chungcheong, and Honam regions, to have decreased in the Gangwon region and to have remained flat in the other regions. In the Seoul Metropolitan, Chungcheong, and Honam regions, sales of durables such as home appliances and semi-durables such as clothing were favorable, while consumptions in the Gangwon region declined due to the base effect of the PyeongChang 2018 Olympic Winter Games. **Facilities investment** increased in the Honam region, particularly in iron & steel and food & beverage industries, and also went up in the Jeju region, centering around food & beverages. It decreased in the Dongnam region as facilities investment made by petrochemical & oil refining companies was partially completed, and also declined in the Chungcheong and Daegyeong regions, due mainly to the sluggish performances of major regional manufacturers. **Construction investment** was found to have stayed flat in the Honam and Daegyeong regions, while dropping in other regions due to a reduced social overhead capital (SOC) budget and housing market stabilization measures. **Exports** increased in most regions, led by semiconductors, petrochemicals, petroleum products, and machinery, while slumping in the Dongnam region due to the fall in the number of vessels handed over.

Demand in Q2 2018 by Region¹⁾

	Private Consumption	Facilities Investment	Construction Investment	Exports
Seoul Metropolitan	▲	◇	▼	▲
Dongnam	◇	▼	▼	▼
Chungcheong	▲	▼	▼	▲
Honam	▲	▲	◇	▲
Daegyeong	◇	▼	◇	◇
Gangwon	▼	▼	▼	▲
Jeju	◇	▲	▼	▲

Note: 1) Markers indicate the direction of change in the levels of private consumption, facilities investment, and construction investment compared to the previous quarter, and that in the level of exports compared to Q2 2017. ▲ represents an increase, ◇ no change, ▼ a decrease.

According to the monitoring results, **private consumption** is likely to show gradual improvement in the Seoul Metropolitan, Chungcheong, Gangwon, and Jeju regions, driven by favorable consumer sentiment and the start of the peak tourist season. However, ongoing restructuring of the major industries of the Dongnam,

Honam, and Daegyeong regions is likely to limit consumption in these areas. **Facilities investment** is likely to increase in the Gangwon and Jeju regions, boosted by facilities expansion in the food & beverage industry, while that in other regions is expected to remain unchanged, as most industries will likely focus on maintenance & repair. **Construction investment** in most regions is projected to drop or remain unchanged, due to a slowdown in civil engineering construction caused by SOC budget cuts and also to a decline in the stock of new apartments available for sale. **Exports** will grow in most regions, led by semiconductors, petrochemicals, petroleum products, and machinery, thanks to continuing improvement of the global economy.

Employment

The number of persons employed in April and May 2018 rose by 100,000 per month year on year, on average, which is a slower pace of increase than that in the first quarter of 2018, during which the number of persons employed had grown by 180,000 per month year on year, on average. By region, the Seoul Metropolitan and Chungcheong regions saw deceleration in the pace of increase in the number of persons employed. The Dongnam region, however, witnessed a faster pace of decrease, and the Daegyeong region observed a slower pace of decrease. The Honam, Gangwon, and Jeju regions generally remained unchanged. By sector, the increase in manufacturing employment seen in the previous quarter reversed to a decline. The extent of increase narrowed in the construction sector, while widening in the agricultural, forestry & fisheries and service sectors.

Consumer and Housing Prices

Consumer prices rose 1.6% per month year on year, on average, in April and May 2018, faster than the 1.3% increase in the first quarter of 2018. This is attributable to a rise in agricultural product prices stemming from a surge in some vegetable prices, and to faster paces of increase in the prices of industrial products, and petroleum products in particular, in line with rising international oil prices.

During April and May 2018, **housing sales prices** rose 0.02% per month, on average, compared to the last month of the previous quarter, a slower pace than in

the first quarter of 2018, during which the price index had risen by 0.15% a month, on average. By region, housing sales prices saw slower paces of increase in the Seoul Metropolitan and Honam regions, remained unchanged in the Daegyeong region, turned to a decrease from an increase in the previous quarter in the Gangwon and Jeju regions, and witnessed faster paces of decrease in the Dongnam and Chungcheong regions.

Corporate Financial Conditions

The survey results indicate that the Honam and Jeju regions saw improved **corporate financial conditions** during the second quarter of 2018, particularly in tourism-related businesses. The Chungcheong region witnessed somewhat worsened conditions, centering on manufacturing and construction firms, and the Daegyeong and Gangwon regions also saw somewhat worsened conditions, especially among companies in the service sector. Corporate financial conditions in the Seoul Metropolitan and Dongnam regions remained unchanged.

Summary of Current Developments in Major Industries' Production

Industry		Current Developments
IT	Semiconductor	Continued to grow in both the Seoul Metropolitan and Chungcheong regions, the two main producing areas, as the demand for server DRAM and NAND flash memory for SSDs and smartphones increased
	Display Panel	Declined in the Seoul Metropolitan, Chungcheong, and Daegyeong regions, due largely to the weakening demand for small- and medium-sized OLED panels and an increased supply of LCD panels in China
	Mobile Phone	Decreased in the Seoul Metropolitan and Daegyeong regions, owing to the sluggish global demand for high-end smartphones
Automobile		Recorded mixed results across regions despite the recovery in auto parts exports, as domestic and overseas sales of fully built automobiles varied across types of cars; production in the Seoul Metropolitan and Daegyeong regions increased, while that in the Honam, Chungcheong, and Dongnam regions declined
Petrochemicals & Oil Refining	Petrochemicals	Increased in the Seoul Metropolitan, Dongnam, and Chungcheong regions, driven by Chinese government's tightening of environmental regulations and the consequent reduction in Chinese firms' output
	Oil Refining	Increased in the Seoul Metropolitan and Honam regions driven by strong overseas demand and expanded refining margins supported by higher oil prices; remained unchanged in the Dongnam region as the utilization rate dropped due to regular facilities maintenance at some producers
Iron & Steel		Decreased in the Dongnam and Honam regions but remained unchanged in the Daegyeong and Chungcheong regions, as the indirect benefits from restructuring of the steel industry in China were offset by the slowdown in downstream industries, including automobiles, shipbuilding, and construction
Shipbuilding		Stagnant in the Dongnam and Honam regions, as backlogs shrank and construction of new orders had not yet entered full swing
Machinery & Equipment		Rose in the Seoul Metropolitan region, mainly driven by semiconductor manufacturing equipment, and in the Daegyeong region, centering around robots and other automation equipment, while remained unchanged in the Dongnam region, as strong exports of construction equipment was offset by weak domestic demand for general purpose machinery

Results of Survey on Topical Issues: Manufacturers' Understanding of and Responses to Fourth Industrial Revolution

1 Understanding of Fourth Industrial Revolution

- ✓ In a survey of 272 manufacturers nationwide about how well they understand the fourth industrial revolution, 64.4% of the respondents said they understand it either "very well" or "well."
- ✓ As for the question of how important the future effect of the fourth industrial revolution on their business is, 57.9% of the respondents said it is either "very important" or "important," while 28.4% responded "not important" and 13.7% said "do not know well."
- Those who answered that the fourth industrial revolution will have an important effect on their business mentioned "productivity improvement," "production cost reduction," and "fulfilling diverse customers' needs" as positive effects.

And they cited "higher costs related to new investment," "intensified competition and declining profitability," and "greater uncertainties in the business environment" as negative effects.
- Asked about the future effect of the fourth industrial revolution on employment, the number of respondents expecting a "decrease" in employment (59.0%) exceeded those forecasting either an "increase" (15.4%) or "no change" (25.6%).

2 Responses to Fourth Industrial Revolution

- ✓ Among the companies that believe the effect of the fourth industrial revolution will be important, 37.8% have already come up with plans and have either taken action or are planning to take action.

- Looking at the responses to the fourth industrial revolution by industry, automobiles (52.6%), petrochemicals & oil refining (50.0%), and IT (42.3%) were the leading industries that have either already taken action or established plans.
- Technologies being used or in the early stage of use by the companies that recognized the importance of the fourth industrial revolution were in order, robots (37.3%), smart factories (32.8%), big data (28.6%), the Internet of Things (21.0%), and self-driving means of transportation (20.5%).

3 Difficulties and Policy Tasks

- ✓ Respondents pointed to "lack of technological capacity," "difficulties in securing key personnel," "lack of domestic infrastructure," and "lack of investment funds" as the leading obstacles to responding to the fourth industrial revolution.
- ✓ As for future government tasks, respondents mainly suggested expansion of related infrastructure, payment of investment-related subsidies, tax cuts, provision of education and training costs, and deregulation of investment-related laws.

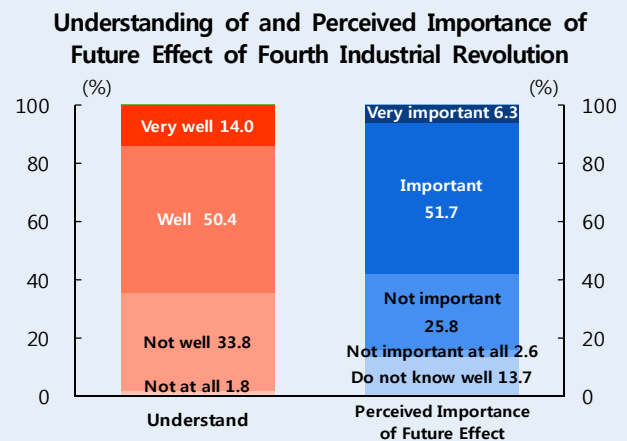
Understanding of Fourth Industrial Revolution

In a survey¹⁾ of 272 manufacturers nationwide about how well they understand the fourth industrial revolution, 64.4% of the respondents said they understand it (14.0% "very

1) This is based on a survey of 272 manufacturers conducted by the 15 regional branches of the Bank of Korea (excluding the Gangnam branch) between May 14 and June 4, 2018. Respondents consist of 138 large companies (50.7%) and 134 SMEs (49.3%). By industry, 37 companies are operating in IT (13.6%), 30 in automobiles (11.0%), 29 in petrochemicals & oil refining (10.7%), 26 in machinery & equipment (9.6%), 22 in iron & steel (8.1%), 12 in shipbuilding (4.4%), and 116 in other industries (42.6%).

well” and 50.4% “well”), while 33.8% responded that they understand it “not well” and 1.8% “not at all.”²⁾

Asked about the future effect of the fourth industrial revolution on their business, 57.9% of the respondents said it is important (6.3% “very important” and 51.7% “important”), while 28.4% responded that the future effect was not important and 13.7% “do not know well.” The survey showed the better the respondents understand the fourth industrial revolution, the more important they consider its effect on their company to be, as 69.7% of the respondents who said they understand the fourth industrial revolution responded that the effect on their business will be important, while that figure was only 38.0% for respondents who said they understand it “not well.”³⁾

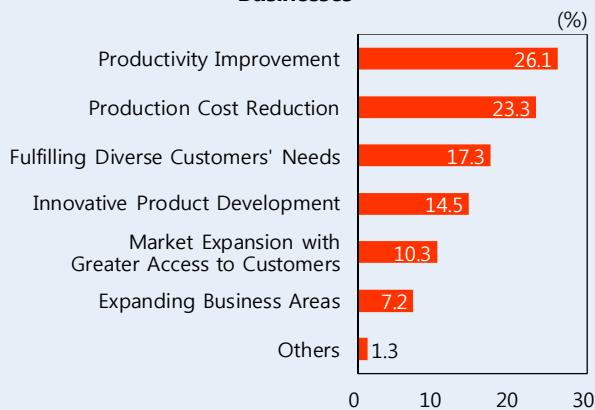


Among the respondents who said the fourth industrial revolution will have an important effect on their business, 26.1% mentioned “productivity improvement,” 23.3% “production cost reduction,” and 17.3% “fulfilling diverse customers’ needs” as positive effects, while 39.0% cited “higher costs related to new investment,” 20.2% “intensified competition and declining profitability,” and 18.5% “greater uncertainties in the business environment” as negative effects.

2) In April 2017, Hyundai Research Institute conducted a survey (“Businesses’ Understanding of the Fourth Industrial Revolution and Implications”) of local businesses which include 279 manufacturers (listed businesses and SMEs). Asked about how well they understand the fourth industrial revolution, 40.9% of the manufacturers said they understand it (6.8% “very well” and 34.1% “well”), while 48.0% answered that they understand it “not well” and 11.1% “not at all.”

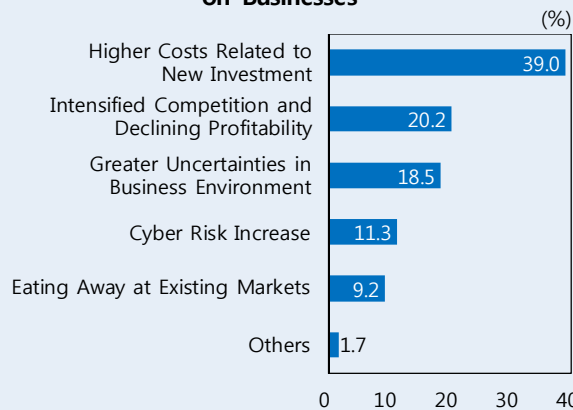
3) Among the respondents who said they understand the fourth industrial revolution, 9.1% said its effect on their business is “very important,” 60.6% “important,” 25.1% “not important,” and 2.9% “not important at all,” while 2.3% said they “do not know well.” Meanwhile, among those who answered they understand the fourth industrial revolution “not well,” 1.1% said its effect on their business will be “very important,” 37.0% “important,” 28.3% “not important,” and 2.2% “not important at all,” while 31.5% responded they “do not know well.”

Positive Effects of Fourth Industrial Revolution on Businesses¹⁾²⁾



Notes: 1) Shares are out of the firms who said the future effect of the fourth industrial revolution on their business will be either "very important" or "important."
2) Multiple responses allowed

Negative Effects of Fourth Industrial Revolution on Businesses¹⁾²⁾

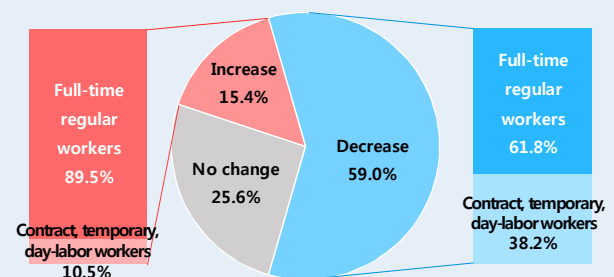


Notes: 1) Shares are out of the firms who said the future effect of the fourth industrial revolution on their business will be either "very important" or "important."
2) Multiple responses allowed

Meanwhile, when asked about the fourth industrial revolution's possible effect on employment, 59.0% expected a "decrease" in employment, 15.4% an "increase," and 25.6% "no change." Among those who expected a "decrease" in employment, 61.8% said

the decline would be seen in full-time regular workers and 38.2% in contract, temporary, and day-labor workers. As for those who expected an "increase" in employment, 89.5% answered that there will be more employment in full-time regular workers. By industry, in petrochemicals & oil refining, automobiles, iron & steel, and shipbuilding, more businesses expected a "decrease" than an "increase" in employment, while the opposite expectation was found in the IT sector.⁴⁾

Possible Effect of Fourth Industrial Revolution on Employment¹⁾



Note: 1) Shares are out of the firms who said that the future effect of the fourth industrial revolution on their business will be either "very important" or "important."

Responses to Fourth Industrial Revolution

Among the companies that believe the effect of the fourth industrial revolution will be important, 25.6% have already come up with plans and taken action, 12.2% have plans in place

4) The percentage of businesses that expected a decrease in employment was higher in petrochemical & oil refining (71.4%), automobile (68.4%), and iron & steel (62.5%) in that order, considerably exceeding the percentages of each industry that expected an increase (14.3%, 5.3%, and 6.3%, respectively). Meanwhile, in IT, the percentage of businesses that forecast an increase in employment (46.2%) was substantially higher than that of businesses that expected a decrease (19.2%).

but are before taking action, 43.6% are currently discussing plans, and 18.6% are not responding.

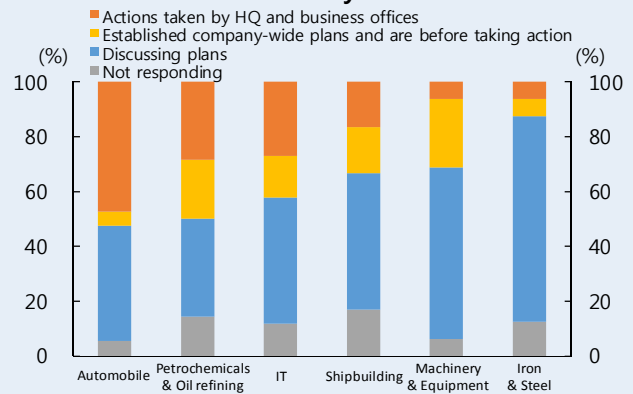
Responses to Fourth Industrial Revolution

	(%) Responses ¹⁾
Partial actions taken by headquarters or some business offices	25.6
Established company-wide plans and are before taking action	12.2
Discussing plans	43.6
Not responding	18.6

Note: 1) Shares are out of the firms who said that the future effect of the fourth industrial revolution on their business will be either "very important" or "important."

Looking at the responses to the fourth industrial revolution by industry, the share of businesses having either already taken action or established plans was considerably higher in automobiles (52.6%), petrochemicals & oil refining (50.0%), and IT (42.3%), among companies that recognized the revolution's importance. Meanwhile, iron & steel, shipbuilding, and machinery & equipment made up more than half of the companies that are discussing plans, meaning that the response level of those industries was relatively low.

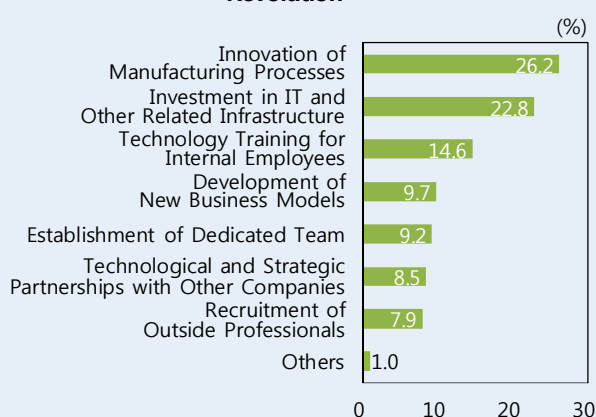
Responses to Fourth Industrial Revolution by Industry¹⁾



Note: 1) Shares are out of the firms who said that the future effect of the fourth industrial revolution on their business will be either "very important" or "important."

Meanwhile, companies that believed the fourth industrial revolution will have a significant impact suggested "innovation of manufacturing processes" (26.2%), "investment in IT and other related infrastructure" (22.8%), and "technology training for internal employees" (14.6%) as major tasks to pursue, while relatively few respondents answered "development of new business models" (9.7%), "establishment of dedicated team" (9.2%), "technological and strategic partnerships with other companies" (8.5%), and "recruitment of outside professionals" (7.9%).

Major Tasks in Response to Fourth Industrial Revolution¹⁾²⁾



Notes: 1) Shares are out of the firms who said that the future effect of the fourth industrial revolution on their business will be either "very important" or "important."

2) Multiple responses allowed

Many respondents said that the fourth industrial revolution-related technologies being used or in the early stage of use were robots (37.3%), smart factories (32.8%), big data (28.6%), the Internet of Things (21.0%), and self-driving means of transportation (20.5%). The technologies that respondents currently lack and are planning or considering to introduce in the near future are smart factories (54.5%), big data (48.1%), Artificial Intelligence (46.4%), the Internet of Things (42.7%), and 3D printing (41.3%).⁵⁾

Introduction of Fourth Industrial Revolution Technology¹⁾

	Undecided	Planning or considering introduction	Already introduced and using	Total
Artificial Intelligence (AI)	39.2	46.4	14.4	100.0
Internet of Things (IoT)	36.3	42.7	21.0	100.0
Big data	23.3	48.1	28.6	100.0
Robots	24.6	38.1	37.3	100.0
Smart factories	12.7	54.5	32.8	100.0
3D printing	43.7	41.3	15.1	100.0
Self-driving means of transportation	41.0	38.5	20.5	100.0
Blockchain	73.9	22.6	3.5	100.0

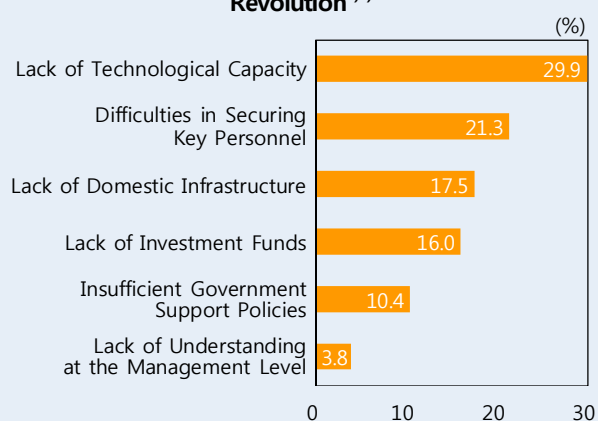
Note: 1) Shares are out of the firms who said that the future effect of the fourth industrial revolution on their business will be either "very important" or "important."

Difficulties & Policy Tasks

With respect to difficulties in responding to the fourth industrial revolution, respondents offered a variety of opinions, such as "lack of technological capacity" (29.9%), "difficulties in securing key personnel" (21.3%), "lack of domestic infrastructure" (17.5%), "lack of investment funds" (16.0%), and "insufficient government support policies" (10.4%).

5) In May of 2018, meanwhile, the Daegu & Gyeongbuk branch of the Bank of Korea carried out a survey of 117 non-manufacturing businesses in the region on the fourth industrial revolution-related technologies that are being introduced and used. The response level was high for big data (22.2%), self-driving means of transportation (13.4%), and Artificial Intelligence (13.0%), and respondents are prioritizing big data (16.5%) and Artificial Intelligence (16.0%) as the technologies they hope to introduce in five years.

Difficulties in Responding to Fourth Industrial Revolution¹⁾²⁾



Notes: 1) Shares are out of the firms who said that the future effect of the fourth industrial revolution on their business will be either "very important" or "important."

2) Multiple responses allowed

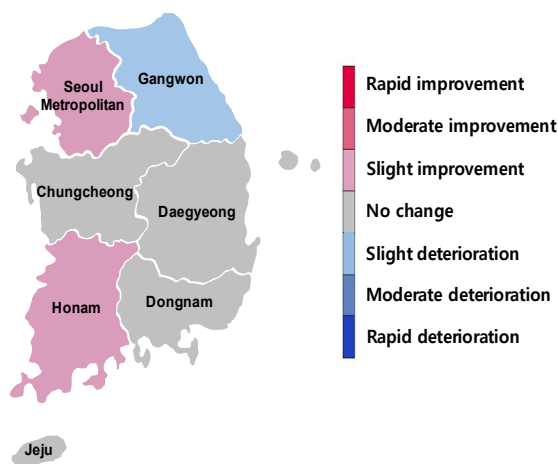
According to the survey, respondents expected that government efforts such as expansion of related infrastructure, payment of investment-related subsidies, tax cuts, provision of education and training costs, and deregulation of investment-related laws would help them cope with the fourth industrial revolution.

Current Regional Economic Conditions

Overview

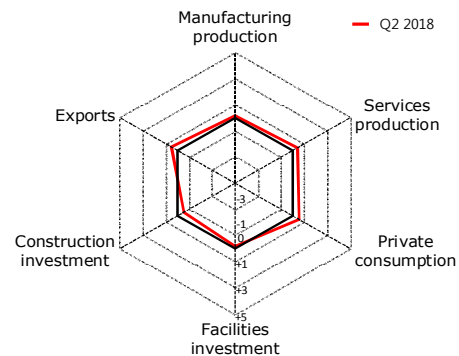
Survey information on regional economic activities collected by the 15 regional branches of the Bank of Korea from businesses and other sources within each region indicates that in the second quarter of 2018 economic activities maintained their pace of improvement in the Seoul Metropolitan region and showed moderate improvement in the Honam region. However, economic activities weakened slightly in the Gangwon region due to the base effect of the PyeongChang 2018 Olympic Winter Games, while remaining flat in the Dongnam, Chungcheong, Daegyeong, and Jeju regions.

Economic Activities in Q2 2018 by Region¹⁾



Note: 1) Assessed based on regional information regarding manufacturing and services production, employment, and financial conditions gathered by monitoring regional businesses and other sources

Radar Chart of Economic Activities¹⁾



Note: 1) Six areas of economic activities are monitored and given scores (ranging between -5 and +5) that represent the direction of change compared to the previous quarter (for exports, compared to a year earlier). Scores of below -0.5, -0.5 to +0.5 and over +0.5 indicate deterioration (decrease), an unchanged level, and improvement (increase), respectively.

Source: Bank of Korea

Production

(No Change in Manufacturing Production)

Manufacturing production in the second quarter of 2018 was found to have increased in the Seoul Metropolitan and Gangwon regions, to have declined in the Dongnam and Daegyeong regions, and to have remained unchanged in all other regions. By industry, production in semiconductors continued to increase, while that in display panels and mobile phones was sluggish. Production in petrochemicals & oil refining and machinery & equipment generally showed an uptrend but remained flat in some regions. Iron & Steel and shipbuilding production either remained unchanged or decreased, depending on the region. In the automobile industry,

production was found to vary across regions depending on their performance in sales of fully built automobiles, with exports of auto parts recovering moderately.

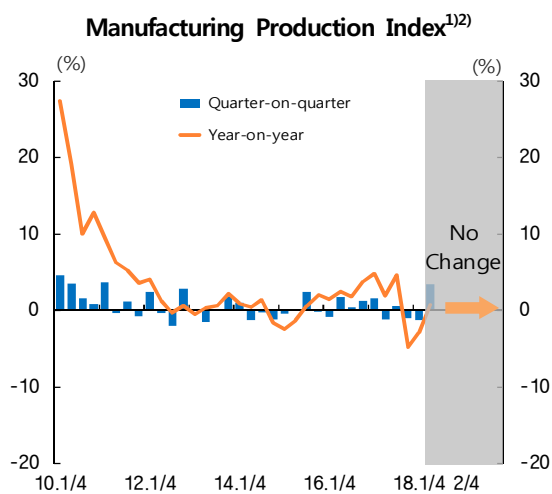
Semiconductor production increased in both the Seoul Metropolitan and Chungcheong regions, the two main producing areas, as the demand for server DRAM and NAND flash memory for SSDs and smartphones grew. In contrast, display panel production declined in the Seoul Metropolitan, Chungcheong, and Daegyeong regions, due largely to the weakening demand for small- and medium-sized OLED panels and an increased supply of LCD panels in China. Mobile phone production decreased in the Seoul Metropolitan and Daegyeong regions, owing to the sluggish global demand for high-end smartphones. In terms of petrochemical production, the Seoul Metropolitan, Dongnam, and Chungcheong regions were found to have benefited from the Chinese government's tightening of environmental regulations and the consequent reduction in Chinese firms' output, although production remained flat in the Honam region. Oil-refining production increased in the Seoul Metropolitan and Honam regions, driven by strong overseas demand and expanded refining margins supported by higher oil prices, while that of the Dongnam region remained at a level similar to the previous quarter's as the utilization rate dropped due to regular facilities maintenance at some producers. Production in machinery & equipment rose in the Seoul Metropolitan region, mainly

driven by semiconductor manufacturing equipment, and in the Daegyeong region, centering around robots and other automation equipment. However, that in the Dongnam region remained unchanged, as strong exports of construction equipment was offset by weak domestic demand for general purpose machinery.

Iron & steel production decreased in the Dongnam and Honam regions but remained unchanged in the Daegyeong and Chungcheong regions, as the indirect benefits from restructuring of the steel industry in China were offset by the slowdown in downstream industries, including automobiles, shipbuilding, and construction. Automobile and auto parts production recorded mixed results across regions despite the recovery in auto parts exports, as domestic and overseas sales of fully built automobiles varied across types of cars; production in the Seoul Metropolitan and Daegyeong regions increased, while that in the Honam, Chungcheong, and Dongnam regions declined. Shipbuilding production was found to have been continuously stagnant in the Dongnam and Honam regions, as backlogs shrank and construction of new orders had not yet entered full swing.

In other industries, meanwhile, production of biosimilar medicines in the Seoul Metropolitan region increased due to new launches in overseas markets, while production of electric and electronic equipment rose in the Chungcheong region owing to the increase in secondary cells exports. Production in home appliances was strong in the Honam region, driven by

high demand for air conditioners and air purifiers.



Notes: 1) The quarter-on-quarter indicator is based on a seasonally adjusted series.
 2) The arrow indicates the direction of change in the level of manufacturing production during the second quarter of 2018 compared to the previous quarter, based on the monitoring results. The bar and line graphs in the shaded area indicate the actual figures in April 2018 (preliminary).

Sources: Bank of Korea; Statistics Korea

Manufacturing Production in Q2 2018 by Region¹⁾

Seoul Metropolitan	Dang-nam	Chung-cheong	Honam	Dae-yeong	Gang-won	Jeju
▲	▼	◇	◇	▼	▲	◇

Note: 1) Markers indicate the direction of change in the level of manufacturing production compared to the previous quarter. ▲ represents an increase, ◇ no change, and ▼ a decrease.

According to the monitoring results, manufacturing production is likely to remain unchanged in the Honam and Daegyeong regions, and to increase in the rest of the regions. By industry, production in semiconductors and petrochemicals & oil refining is expected to continue to grow, while that in iron & steel, display panels,

mobile phones, and shipbuilding is projected to either remain flat or decline. Automobile and auto parts production is forecast to remain generally unchanged, but is expected to improve in the Dongnam and Honam regions where launches of new models are scheduled for the latter half of the year.

(No Change in Services Production)

Services production is reported to have increased in the Chungcheong, Honam, and Jeju regions, to have decreased in the Gangwon region, and to have remained unchanged in the Seoul Metropolitan, Dongnam, and Daegyeong regions.

In the Chungcheong region, wholesale & retail trade production went up, led mainly by favorable consumer sentiment and travel goods sales. The region also saw an increase in restaurants & hotels and tourism-related services, driven chiefly by local festivals and an increase in sports event attendance.¹⁾ In the Honam region, wholesale & retail trade production increased, boosted by a rise in department store sales during the holidays in May—Family Month—and also by favorable duty-free shop sales buoyed by the launch of new international airline routes at Muan airport.²⁾ The region also saw a rise in transportation services resulting from an increased number of tourists. The Jeju region is reported to have seen an increase

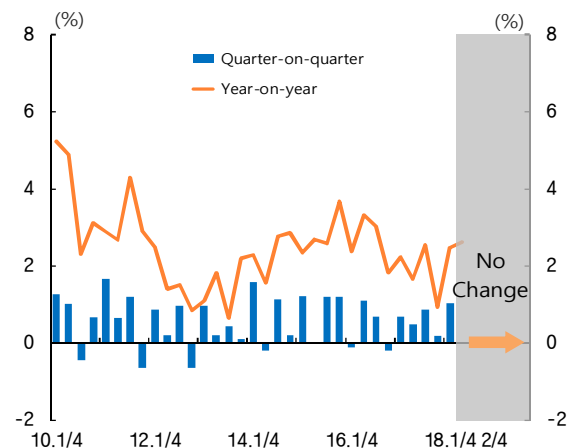
1) As the Hanwha Eagles, a professional baseball team based in the Chungcheong region, have recently been recording good results, the team has sold out its largest number of home games ever in 2018 (12 sold-out games as of June 17, with 13,000 tickets sold per game).

2) Between April 30 and May 2, 2018, Jeju Air launched a series of new regular international flights connecting Muan International Airport with cities such as Osaka, Japan; Da Nang, Vietnam; and Bangkok, Thailand. The airline is also planning to launch a regular flight connecting Muan and Taipei, Taiwan, in July.

in healthcare services driven by a continued net inflow of population, and also to have seen a rise in the accommodation and car rental sectors due to the base effect of their weak performances in the previous quarter. In the Gangwon region, on the other hand, services production declined, as a decrease in the number of domestic and foreign tourists after the closing of the PyeongChang 2018 Olympic Winter Games led to a reduction in related services.

Services production in the Seoul Metropolitan region stayed flat overall, as a growth in transportation services, led by an increased number of overseas trips by Korean residents and by a rise in export volume, was offset by a reduction in real estate services due to a contraction in housing transactions resulting from government's strengthening of housing market regulations. Despite favorable transportation services production backed by an increased volume of container throughput and growth in overseas travel, services production remained unchanged in the Dongnam region due to a decline in real estate services driven by a contraction in housing transactions resulting mainly from housing market stabilization measures. Overall services production in the Daegyeong region remained at the level of the previous quarter, despite a growth in transportation services and restaurants & hotels, as wholesale & retail trade and real estate services remained unchanged.

Services Production Index¹⁾²⁾



- Notes: 1) The quarter-on-quarter indicator is based on a seasonally adjusted series.
2) The arrow indicates the direction of change in the level of services production during the second quarter of 2018 compared to the previous quarter, based on the monitoring results. The bar and line graphs in the shaded area indicate the actual figures in April 2018 (preliminary).

Sources: Bank of Korea; Statistics Korea

Services Production in Q2 2018 by Region¹⁾

Seoul Metropolitan	Dangnam	Chungcheong	Honam	Daegyeong	Gangwon	Jeju
◇	◇	▲	▲	◇	▼	▲

- Note: 1) Markers indicate the direction of change in the level of services production compared to the previous quarter. ▲ represents an increase, ◇ no change, and ▼ a decrease.

The monitoring results indicate that services production is predicted to rise in most regions, particularly in wholesale & retail trade, restaurants & hotels, transportation, and tourism-related services, boosted by the start of the peak tourist season, by an increased number of foreign tourists, and by eased geopolitical risks. However, services production in the Dongnam and Honam regions is expected to stay largely unchanged, as its growth is expected to be restricted in the Dongnam region by delayed improvement in employment and consumer sentiment due to the slump in the main industries, and in

the Honam region by sluggish housing transactions.

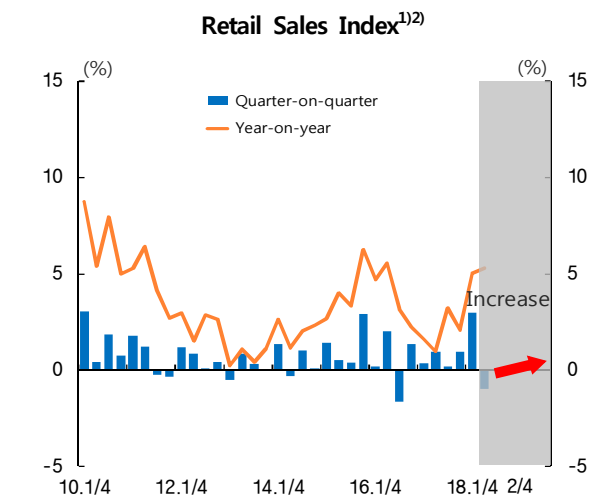
Demand

(Increase in Private Consumption)

Private consumption in the second quarter of 2018 is found to have increased in the Seoul Metropolitan, Chungcheong, and Honam regions, to have decreased in the Gangwon region and to have remained flat in other regions.

In the Seoul Metropolitan region, sales of durables, particularly home appliances such as air purifiers and vacuum cleaners, were favorable, while sales of semi-durables, such as clothing and miscellaneous goods, also picked up. In the Chungcheong and Honam regions, sales of home appliances, such as air purifiers and air conditioners, and imported automobiles were favorable, while sales of leisure products and clothing also climbed. Consumption in the Gangwon region, however, has somewhat slowed down due to the base effect of the PyeongChang 2018 Olympic Winter Games. In the Dongnam and Daegyeong regions, on the other hand, consumption remained flat overall, as an increase in sales of home appliances was offset by a reduction in clothing, cosmetics, and food & beverage consumption resulting mainly from the sluggish performances of the major industries of these regions and from weakened consumer sentiment. In the Jeju region, consumption remained unchanged, as a higher inflow of population led to increased sales of food & beverages and

increased consumption of services, such as healthcare, while a reduction in the number of foreign group tourists led to a decline in sales of cosmetics, clothing, and miscellaneous goods.



Notes: 1) The quarter-on-quarter indicator is based on a seasonally adjusted series.

2) The arrow indicates the direction of change in the level of private consumption during the second quarter of 2018 compared to the previous quarter, based on the monitoring results. The bar and line graphs in the shaded area indicate the actual figures in April 2018 (preliminary).

Sources: Bank of Korea; Statistics Korea

Private Consumption in Q2 2018 by Region¹⁾

Seoul Metropolitan	Dangnam	Chungcheong	Honam	Daegyeong	Gangwon	Jeju
▲	◇	▲	▲	◇	▼	◇

Note: 1) Markers indicate the direction of change in the level of private consumption compared to the previous quarter. ▲ represents an increase and ◇ no change, and ▼ a decrease.

According to the monitoring results, private consumption is likely to show gradual improvement in the Seoul Metropolitan, Chungcheong, Gangwon, and Jeju regions, driven by favorable consumer sentiment and the start of the peak tourist season. However, ongoing restructuring of the major industries of the Dongnam, Honam, and Daegyeong regions is likely to limit consumption in these areas.

(Decrease in Facilities Investment)

Facilities investment during the second quarter of 2018 is reported to have increased in the Honam and Jeju regions, to have decreased in the Dongnam, Chungcheong, Daegyeong, and Gangwon regions, and to have stayed flat in the Seoul Metropolitan region.

In the Honam region, facilities investment increased as ongoing investment was supplemented by new investment in the iron & steel³⁾ and food & beverage⁴⁾ industries. Facilities investment also increased in the Jeju region as some beverage firms expanded production capacity, more than offsetting a decrease in purchases of new cars for rental in the lead-up to the implementation of a rental car quota system.⁵⁾

Meanwhile, facilities investment declined in the Dongnam region, since the completion of some large-scale investments by petrochemical & oil refining companies more than offset the continued investment to replace worn-out equipment to cope with strengthened environmental regulations.⁶⁾ Facilities investment decreased overall in the Chungcheong region as well, as investment declined in the display panel, iron & steel, and auto parts industries due to lackluster performances, while the

semiconductor and oil-refining industries maintained robust investment at the previous quarter's level as firms built newly and expanded factories. In the Daegyeong region, facilities investment declined overall, as investment in the mobile phone industry decreased, due mainly to decreased domestic production and sluggish exports, and investment in display panels also declined, owing chiefly to a reduction of LCD panel display production lines and also to the difficulties of small- and medium-sized OLED panel manufacturers in reaching new corporate customers, which together more than offset an increase in facilities investment in machinery & equipment and textiles. In the Gangwon region, facilities investment decreased due to sluggish facilities investment in medical devices and auto parts, the region's key industries. In the Seoul Metropolitan region, meanwhile, facilities investment remained unchanged overall, as that in the semiconductor industry fell with investment in new production lines partly completed, and investment in other industries, such as display panels, mobile phone, and automobiles, was mainly focused on maintenance and repair of existing facilities, while the pharmaceutical⁷⁾ and machinery & equipment industries continued investing in facilities to increase their capacity.

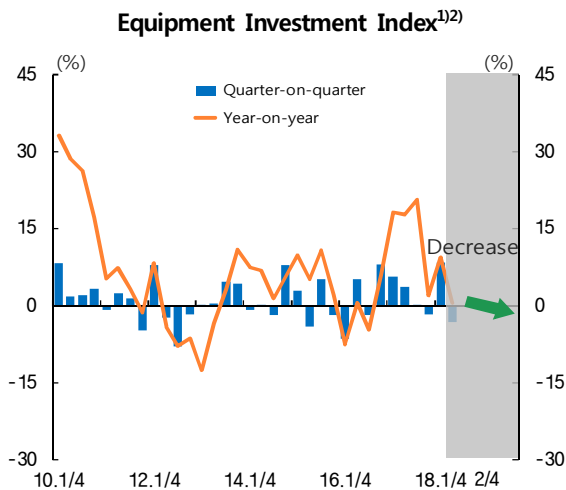
3) POSCO Gwangyang Steelworks started construction of a cathode (secondary battery material) plant with an annual production capacity of 6,000 tons on May 29, 2018 (to be completed in 2019; 270 billion won to be invested).

4) Harim has been constructing Harim Food Complex since the end of February 2018 at a cost of 400 billion won, and HITEJINRO made 10 billion won of facilities investment in the second quarter of 2018 in an effort to relocate its beer can lines.

5) Jeju Island plans to implement a rental car quota system in September 2018. The number of rental cars, currently about 32,000, will be reduced by about 7,000 (a 22% decrease) by 2019 and kept at 25,000.

6) SK energy is replacing its current desulfurizers with environmentally friendly ones and will continue this effort throughout this year.

7) Samsung Biologics and Celltrion are investing in increased capacities in their third and first plants, respectively.



Notes: 1) The quarter-on-quarter indicator is based on a seasonally adjusted series.
 2) The arrow indicates the direction of change in the level of facilities investment during the second quarter of 2018 compared to the previous quarter, based on the monitoring results. The bar and line graphs in the shaded area indicate the actual figures in April 2018 (preliminary).

Sources: Bank of Korea; Statistics Korea

Facilities Investment in Q2 2018 by Region¹⁾

Seoul Metropolitan	Dang-nam	Chung-cheong	Honam	Dae-yeong	Gang-won	Jeju
◇	▼	▼	▲	▼	▼	▲

Note: 1) Markers indicate the direction of change in the level of facilities investment compared to the previous quarter. ▲ represents an increase, ◇ no change, and ▼ a decrease.

According to the monitoring results, facilities investment in the Gangwon and Jeju regions is likely to be centered around capacity expansion in the food & beverage industry, while that in other regions is expected to remain unchanged, as most industries will likely focus on carrying out planned investment or performing maintenance and repairs of existing facilities.

(Decrease in Construction Investment)

Construction investment during the second quarter of 2018 was found to have stayed flat in the Honam and Daegyeong regions, while dropping in other regions due to a reduced social overhead capital (SOC) budget and housing market stabilization measures.

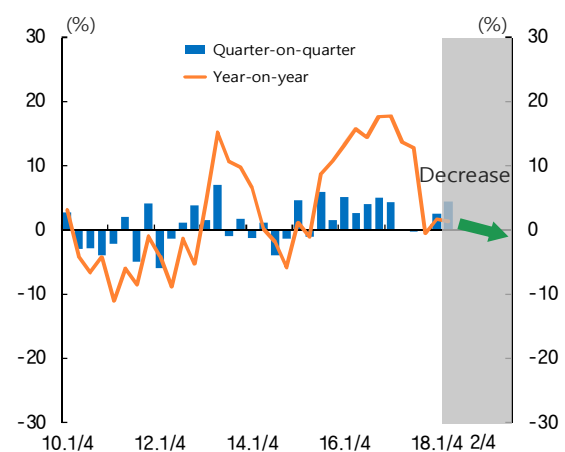
In the Honam region, construction investment remained unchanged, as it declined in the private sector affected chiefly by housing market stabilization measures and a reduction in new apartment sales, while increasing in the public sector due to the early execution of the budget for the first half of this year. In the Daegyeong region, construction investment was found to have shown favorable movements in the private sector, centering around residential buildings, while remaining unchanged in the public sector due to sluggish civil engineering construction.

In the Seoul Metropolitan region, meanwhile, construction investment in the private sector exhibited slower growth, with some construction projects completed and the construction of commercial buildings sluggish, and public-sector construction declined affected by a reduction in the SOC budget. Construction investment decreased in the Dongnam region as well, since residential building construction declined due to a reduction in new construction starts⁸⁾ and non-residential

8) Construction starts of both residential and non-residential buildings have been recently decreasing in the Dongnam region (on a year-on-year basis; -35.4% in Q4 2017 (-38.1% for residential building construction and -32.4% for non-residential building construction) → -40.1% in Q1 2018 (-63.2% for residential building construction and -23.0% for non-residential building construction)).

building construction also decreased owing to decreased orders taken from the public sector. In the Chungcheong region, construction investment declined, as non-residential building and civil engineering construction decreased in line with the rising office vacancy rate⁹⁾ and a reduction in the SOC budget, respectively, while residential building construction remained at the previous quarter's level. In the Gangwon region, civil engineering construction was sluggish due to the ending of the PyeongChang 2018 Olympic Winter Games and a reduction in the SOC-related budget, and residential building construction also decreased owing to a delay in construction of some new apartments. Construction investment declined in the Jeju region as well, as public-sector construction was sluggish due to a delay in order placement and private-sector construction was also lackluster centering around residential building construction.

Value of Construction Completed¹⁾²⁾



- Notes: 1) The quarter-on-quarter indicator is based on a seasonally adjusted series.
 2) The arrow in the shaded area indicates the direction of change in the level of construction investment during the second quarter of 2018 compared to the previous quarter, based on the monitoring results. The bar and line graphs in the shaded area indicate the actual figures in April 2018 (preliminary).

Sources: Bank of Korea; Statistics Korea

Construction Investment in Q2 2018 by Region¹⁾

Seoul Metropolitan	Dang-nam	Chung-cheong	Honam	Dae-gyeong	Gang-won	Jeju
▼	▼	▼	◇	◇	▼	▼

Note: 1) Markers indicate the direction of change in the level of construction investment compared to the previous quarter. ◇ represents no change and ▼ a decrease.

According to the monitoring results, construction investment in most regions is projected to decline, due to the sustained sluggishness of civil engineering construction caused by SOC budget cuts and also to a decline in the stock of new apartments available for sale owing to the government's strengthening of housing market regulations. Construction investment is forecast to remain unchanged in the Chungcheong and Daegyeong regions, however, as factors causing a decline in construction investment will likely be offset

9) The office vacancy rate in the Chungcheong region stood at an average of 17.4% in Q1 2018, up from the previous quarter (16.9%). The figure is also higher than the national average (12.7%).

by demand for regional development projects¹⁰⁾ in Chungcheong and by the promotion of urban regeneration projects in Daegyeong.

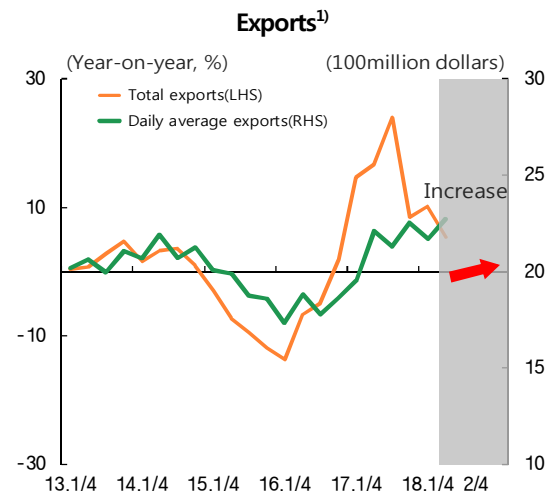
(Increase in Exports)

In the second quarter of 2018, exports increased in most of the regions, led by semiconductors, petrochemicals, petroleum products, and machinery, while slumping in the Dongnam region due to the fall in the number of vessels handed over, and remaining unchanged in the Daegyeong region.

By item, exports of semiconductors increased thanks to the expansion of production facilities and the continuation of strong global demand for DRAM for servers. Exports of petrochemicals and petroleum products rose, driven by heightened export prices associated with rising international oil prices, and by strong global demand. Exports of machinery showed buoyancy, led by semiconductor manufacturing equipment, construction equipment, and general purpose machinery.

Exports of display panels decreased, however, caused by an increase in LCD panels supplied by Chinese companies and a fall in panel prices, and those of mobile phones declined due to sluggish demand for high-end smartphones. Exports of ships also continued to decline. Exports of iron and steel, meanwhile, remained flat, as positive factors, such as an increase in export prices stemming from rising

commodity prices, were combined with negative factors, such as expanded production in China and strengthened US trade protectionism. Automobile exports also held steady, as a decrease in exports of fully built automobiles was offset by an increase in auto parts exports.



Note: 1) The arrow indicates the direction of year-on-year change in the level of exports during the second quarter of 2018, based on the monitoring results. The line graphs in the shaded area are based on the actual figures for April and May 2018 (preliminary).

Sources: Bank of Korea; Korea International Trade Association

Exports in Q2 2018 by Region¹⁾

Seoul Metropolitan	Dangnam	Chungcheong	Honam	Daegyeong	Gangwon	Jeju
▲	▼	▲	▲	◇	▲	▲

Note: 1) Markers indicate the direction of year-on-year change in exports. ▲ represents an increase, ◇ no change, and ▼ a decrease.

According to the monitoring results, exports will grow in most regions, led by semiconductors, petrochemicals, petroleum products, and machinery thanks to continuing improvement of the global economy. Exports of automobiles will likely grow slightly thanks to the positive effects

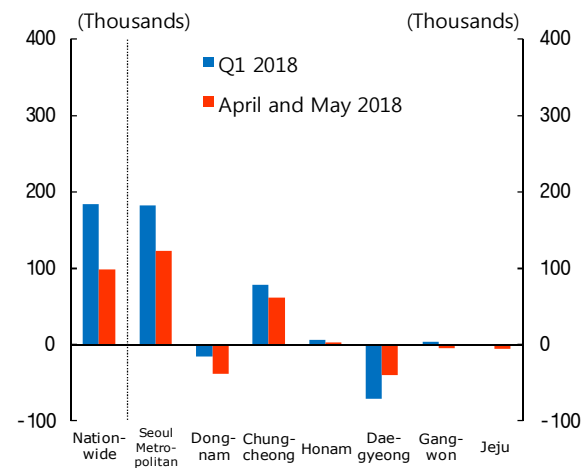
10) In the Chungcheong region, new town development projects are underway, including Daejeon Doan New Town and Innovative City in Jincheon, Chungbuk. Regional development projects are also being promoted, including Shinsegae Group's Daejeon Science Complex and Hyundai Outlet in Yongsan-dong.

of the launch of new models and increased demand from China, but the spread of protectionism and fiercer global competition will likely act as constraints on export growth. Exports of mobile phones and ships will likely continue to be sluggish, as their global demand shows slow recovery.

Employment: Slower Increase in the Number of Persons Employed

The number of persons employed in April and May 2018 rose by 100,000 per month year on year, on average, which is a slower pace of increase than that in the first quarter of 2018, during which the number of persons employed had grown by 180,000 per month year on year, on average. By region, the Seoul Metropolitan and Chungcheong regions saw deceleration in the pace of increase in the number of persons employed. The Dongnam region, however, witnessed a faster pace of decrease, and the Daegyeong region observed a slower pace of decrease. The Honam, Gangwon, and Jeju regions generally remained unchanged. By sector, the increase in manufacturing employment seen in the previous quarter reversed to a decline. The extent of increase narrowed in the construction sector, while widening in the agricultural, forestry & fisheries and service sectors.

Changes in the Number of Persons Employed¹⁾



Note: 1) Based on monthly averages of year-on-year changes

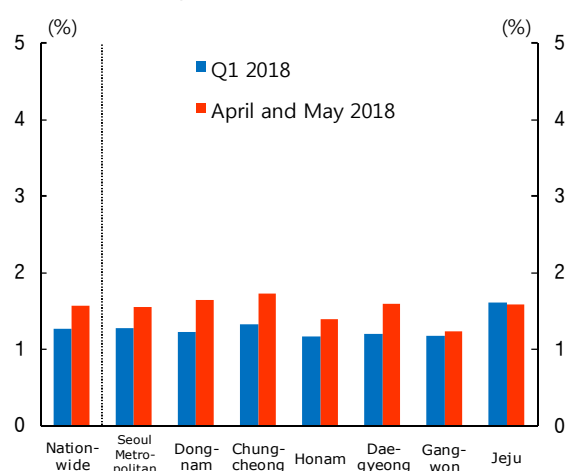
Source: Statistics Korea

Consumer and Housing Prices

(Faster Rise in Consumer Prices)

Consumer prices rose 1.6% per month year on year, on average, in April and May 2018, faster than the 1.3% increase in the first quarter of 2018. This is attributable to a rise in agricultural product prices stemming from a surge in some vegetable prices, and to faster paces of increase in the prices of industrial products, and petroleum products in particular, in line with rising international oil prices.

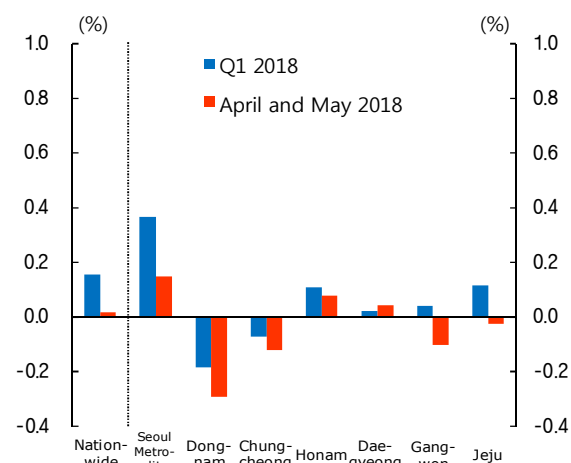
Changes in Consumer Prices¹⁾



Note: 1) Based on monthly averages of year-on-year changes

Source: Statistics Korea

Changes in Housing Sales Prices¹⁾



Note: 1) Based on monthly averages of changes compared to the last month of the previous quarter

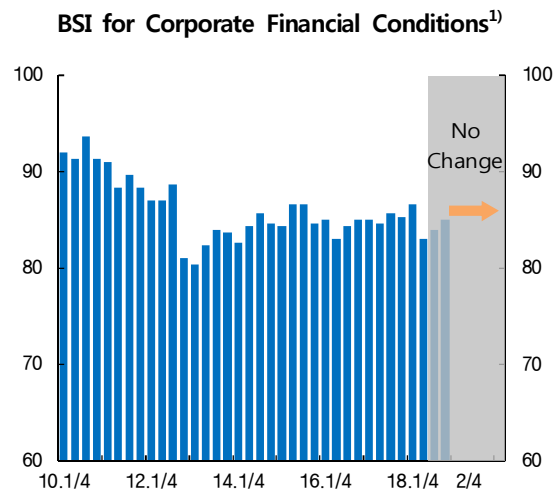
Source: Korea Appraisal Board

(Slower Increase in Housing Prices)

During April and May 2018, housing sales prices rose 0.02% per month, on average, compared to the last month of the previous quarter, a slower pace than in the first quarter of 2018, during which the price index had risen by 0.15% a month, on average. By region, housing sales prices saw slower paces of increase in the Seoul Metropolitan and Honam regions, remained unchanged in the Daegyeong region, turned to a decrease from an increase in the previous quarter in the Gangwon and Jeju regions, and witnessed faster paces of decrease in the Dongnam and Chungcheong regions.

Corporate Financial Conditions: No Change

The survey results indicate that the Honam and Jeju regions saw improved corporate financial conditions during the second quarter of 2018, particularly in tourism-related businesses. The Chungcheong region witnessed somewhat worsened conditions, centering on manufacturing and construction firms, and the Daegyeong and Gangwon regions also saw somewhat worsened conditions, especially among companies in the service sector. Corporate financial conditions in the Seoul Metropolitan and Dongnam regions remained unchanged.



Note: 1) The arrow indicates the direction of change in the level of corporate financial conditions during the second quarter of 2018 compared to the previous quarter, based on the monitoring results. The bar graph in the shaded area is based on the actual figure in April and May 2018.

Source: Bank of Korea