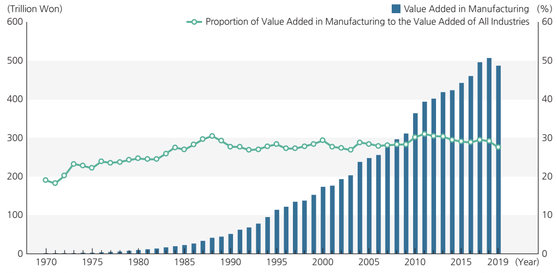
Manufacturing

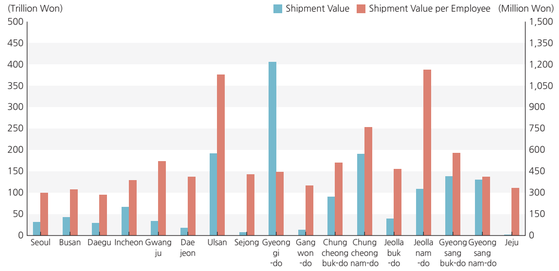
Changes in Value Added in Manufacturing (1970–2019)



* Value added is the Nominal Value for the Year

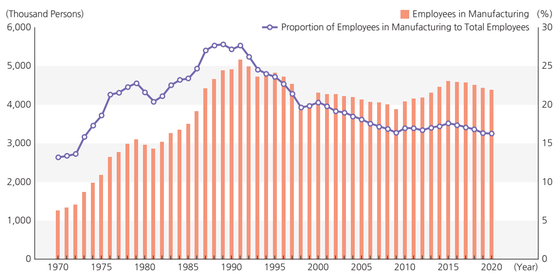
Bank of Korea (Each Year)

Manufacturing Shipment Values by Region



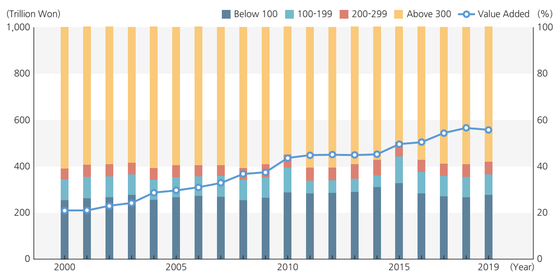
Statistics Korea (2019)

Changes in Employees in Manufacturing (1970–2020)



Statistics Korea (Each Year)

Changes in Value Added by the Size of Worker Groups in Manufacturing (2000–2019)



Statistics Korea (Each Year)

Manufacturing in Korea has gone through tremendous continuous growth during the last 60 years, playing a pivotal role in the nation's economic development and upgrading the overall industrial foundation. In the early period of industrialization during the 1960s and the early 1970s, the government chose to promote and nurture light industries such as textiles, clothing, wigs, and shoes. However, since the mid-1970s, the government's industry promotion has shifted to the heavy and chemical industries that served the relatively large domestic markets and provided the foundation for industrialization to take off. In the 1990s, there was a shift in investment emphasis to high-tech industries. Significant high-tech growth, including the development of semiconductors, computers, and information and communication technology, was accompanied by advanced technology training. Since the mid-2000s, stagnated growth in the manufacturing sector has brought a need for a different development strategy. Especially concerning growing fears of the downturn of manufacturing which arose from soaring inflation, global supply chain bottlenecks, and a resurgent COVID-19, it is necessary to implement new measures that can enhance the competitiveness in manufacturing.

The nominal value added in manufacturing which was only 490 billion won in 1970, sharply increased to about 485 trillion won in 2019. Likewise, the proportion of added value in manufacturing to the added value of all industries has increased by 8.5% from 19.0% in 1970 to 27.5% in 2019.

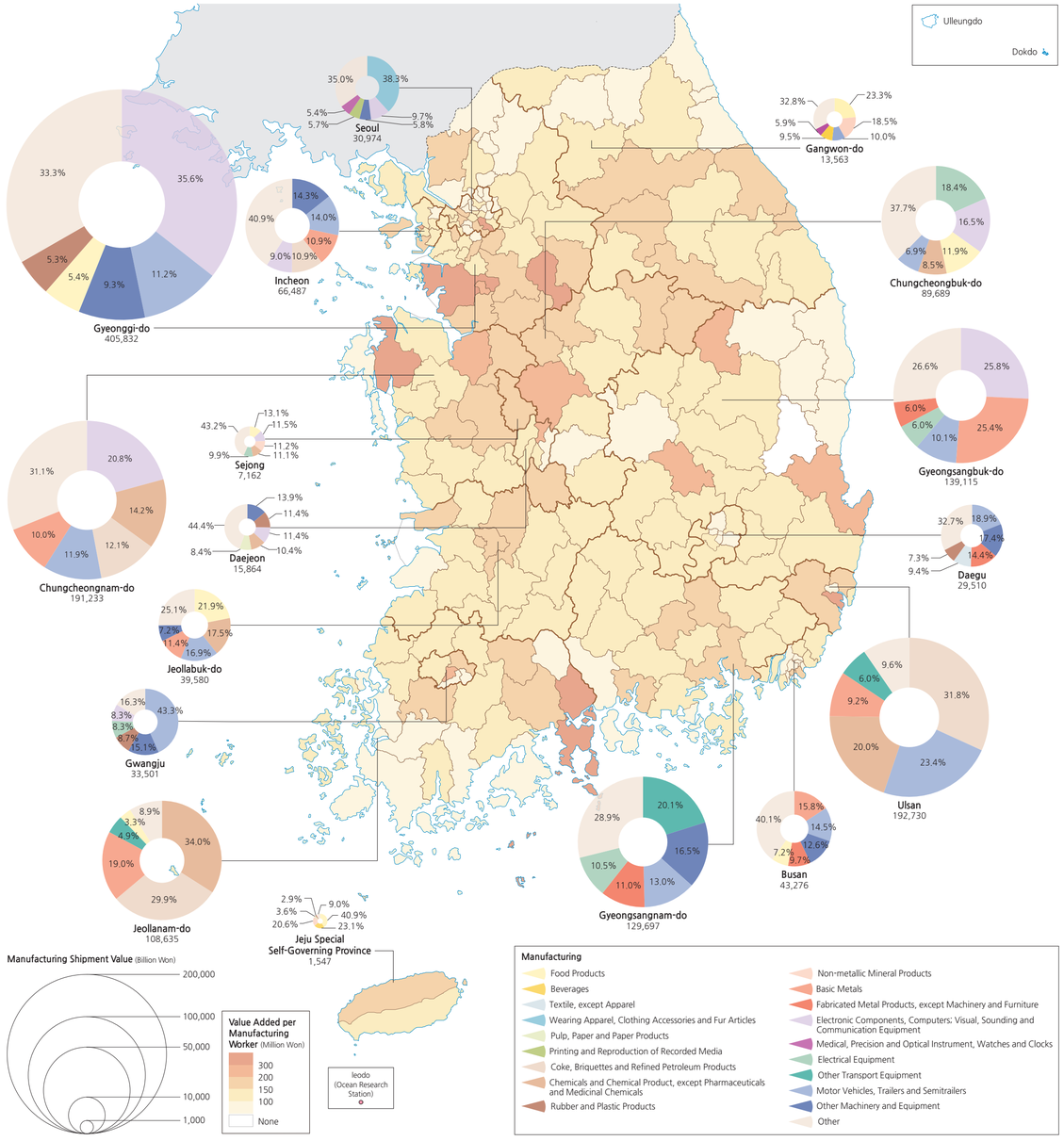
The manufacturing shipment values by region in 2019 were the highest in Gyeonggi-do (406 trillion won), followed by Ulsan (193 trillion won), Chungcheongnam-do (191 trillion won), and Gyeongsangbuk-do (139 trillion won). The manufacturing shipment values per worker in 2019 were the highest in Jeollanam-do (1.2 billion won/person), followed by Ulsan (1.1 billion won/person), Chungcheongnam-do (760 million won/person), and Gyeongsangbuk-do (580 million won/person).

The number of workers in manufacturing increased from about 1.27 million people in 1970 to about 5.16 million people in 1991, the highest since 1970. Since then, the number has mainly turned downward. In 2020, the number of workers in manufacturing fell to 4.38 million people. Likewise, the percentage of the number of workers in manufacturing increased until 1991, after that, it has shown generally downward trends.

According to the changes in value added by the size of worker groups in manufacturing from 2000-2019, the share of gross value added of enterprise with over 300 workers was more than 50% annually. Considering the value added in manufacturing increased from about 210 trillion won to about 557 trillion won during the same period, the gross value added of enterprises with over 300 workers increased quite dramatically.

Overview of Manufacturing

Regional Manufacturing Features (2019)



Statistics Korea (2019)

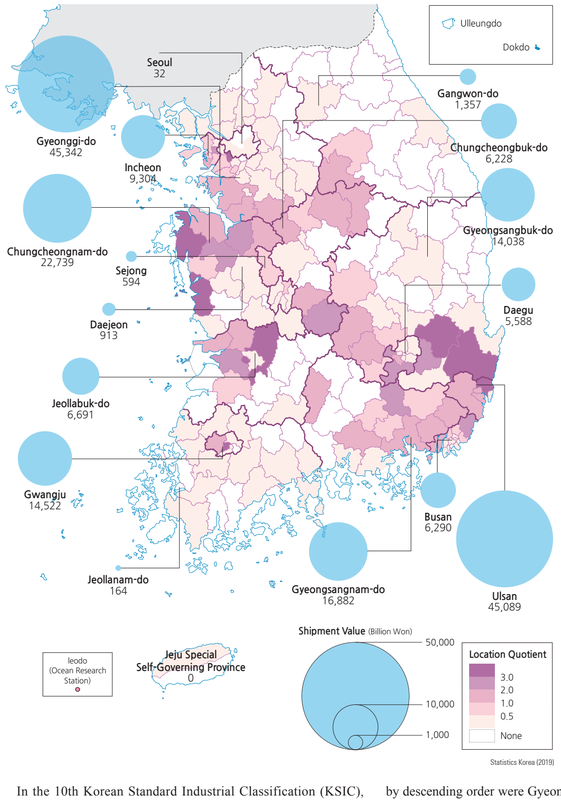
The maps of the top five regional manufacturing based on shipment values and the manufacturing's value added per worker indicate the current regional manufacturing features in Korea. Above all, the manufacturing's value added per workers in 2019 was the highest in Yeosu-si (930 million won), followed by Nam-gu in Ulsan (640 million won), Seosan-si (610 million won), Hwaseong-si (420 million won), Gwangyang-si (400 million won), Icheon-si (390 million won), Gangnam-gu in Seoul (360 million won), Seo-gu in Gwangju (330 million won), and Asan-si (320 million won).

According to the regional representative manufacturing based on shipment values in 2019, the top manufacturing share in each region was as follows: manufacture of wearing apparel, clothing accessories and fur articles (38.3%) in Seoul, manufacture of basic metals (15.8%) in Busan, manufacture of motor vehicles, trailers and semitrailers (18.9%) in Daegu, manufacture of other machinery and equipment (14.3%) in Incheon, manufacture of motor vehicles, trailers and semitrailers (43.3%) in Gwangju, manufacture of other machinery and equipment (13.9%) in Daejeon, manufacture of coke, briquettes and refined petroleum products (31.8%) in Ulsan, manufacture of food products (13.1%) in Sejong, manufacture of electronic components, computer; visual, sounding and communication equipment (35.6%) in Gyeonggi-do, manufacture of food products (23.3%) in Gangwon-do, manufacture of electrical equipment (18.4%) in Chungcheongbuk-do, manufacture of electronic components, computer; visual, sounding and communication equipment (20.8%) in Chungcheongnam-do, manufacture of food products (21.9%) in Jeollabuk-do, manufacture of chemicals and chemical products; except pharmaceuticals and medicinal chemicals (34.0%) in Jeollanam-do, manufacture of electronic components, computer, and visual, sounding and communication equipment (25.8%) in Gyeongsangbuk-do, manufacture of other transport equipment (20.1%) in Gyeongsangnam-do, and manufacture of food products (40.9%) in Jeju-do.

The current major manufacturing industries in Korea have served as the foundation of national economic growth for years. The top five new emerging industries will become the future cornerstone of Korea's economy. The current major manufacturing in Korea are as follows: (1) the machinery group including manufacture of motor vehicles, shipbuilding industry, and general purpose machinery manufacturing, (2) the materials group including the steel industry, oil refining, and chemical industry, and (3) the ICT group including household electric appliances industry, communication and broadcasting apparatuses, and semiconductor manufacturing. The top five new emerging industries are as follows: (1) next generation semiconductor industry, (2) new metal material industry, (3) next generation ceramic material industry, (4) advanced chemical material industry, and (5) high-tech textile material industry.

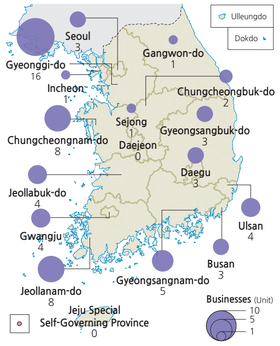
Manufacture of Motor Vehicles

Manufacture of Motor Vehicles (2019)



Statistics Korea (2019)

Manufacture of Motor Vehicles and Engines for Motor Vehicles

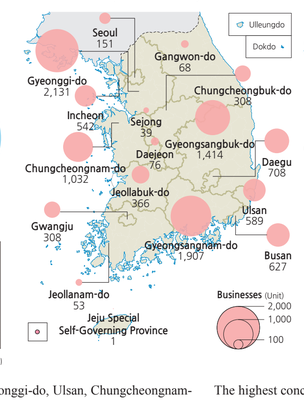


Statistics Korea (2019)

Manufacture of Bodies for Motor Vehicles; Manufacture of Trailers and Semi-Trailers

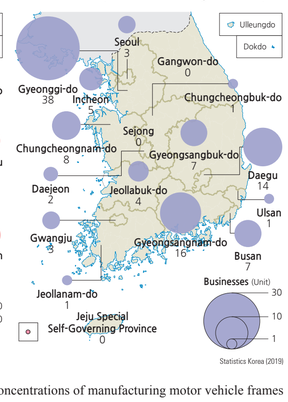
Statistics Korea (2019)

Manufacture of Parts and Accessories for Motor Vehicles (New Products)



Statistics Korea (2019)

Manufacture of Parts and Accessories for Motor Vehicles (Remanufacturing Products)

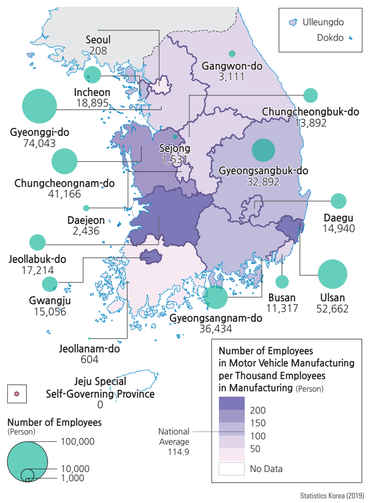


Statistics Korea (2019)

In the 10th Korean Standard Industrial Classification (KSIC), the manufacture of motor vehicles is listed as "Manufacture of motor vehicles, trailers, and semitrailers," including "Manufacture of motor vehicles and engines for motor vehicles," "Manufacture of bodies for motor vehicles," "Manufacture of trailers and semi-trailers," "Manufacture of parts and accessories for motor vehicles (new products)," and "Manufacture of parts and accessories for motor vehicles (remanufacturing products)." The location quotients for the manufacture of motor vehicles ranked by descending order were Buk-gu in Ulsan, Seo-gu in Gwangju, Wanju-gun, Seosan-si, Gwangmyeong-si, Gyeongju-si, Yeongcheon-si, and Boryeong-si. The shipment values for the manufacture of motor vehicles ranked by descending order were Gyeonggi-do, Ulsan, Chungcheongnam-do, Gyeongsangnam-do, and Gwangju. Both the number of workers and value added for the manufacture of motor vehicles ranked by descending order were Gyeonggi-do, Ulsan, Chungcheongnam-do, Gyeongsangnam-do, and Gyeongsangbuk-do. The production costs for the manufacture of motor vehicles ranked by descending order were Ulsan, Gyeonggi-do, Chungcheongnam-do, Gyeongsangnam-do, and Gwangju.

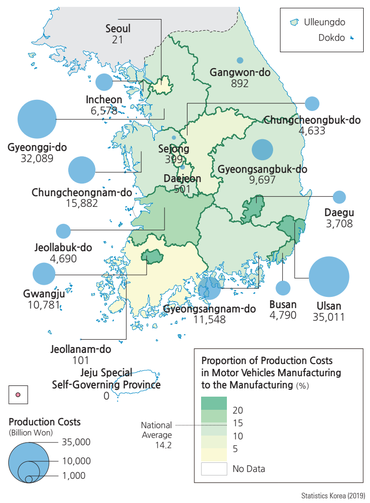
For the classification of manufacture of motor vehicles, the highest concentrations of manufacture of motor vehicles and engines for motor vehicles are (in descending order) in Gyeonggi-do, Chungcheongnam-do, Jeollanam-do, and Gyeongsangnam-do. The highest concentrations of manufacturing of trailers and semi-trailers are (in descending order) in Gyeonggi-do, Jeollabuk-do, Chungcheongbuk-do, and Gyeongsangnam-do. The highest concentrations of manufacturing of parts and accessories for motor vehicles (new products) are (in descending order) in Gyeonggi-do, Gyeongsangnam-do, Gyeongsangbuk-do, and Chungcheongnam-do. The highest concentrations of manufacturing of parts and accessories for motor vehicles (remanufacturing products) are (in descending order) in Gyeonggi-do, Gyeongsangnam-do, Daegu, and Chungcheongnam-do.

Number of Employees in Motor Vehicles Manufacturing (2019)



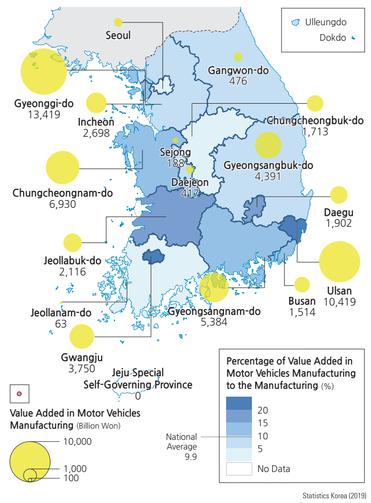
Statistics Korea (2019)

Production Costs in Motor Vehicles Manufacturing (2019)



Statistics Korea (2019)

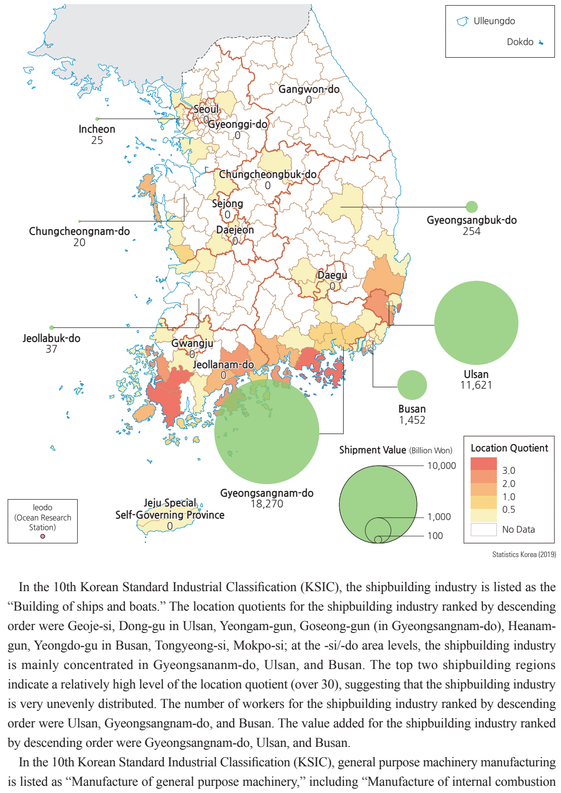
Value Added in Motor Vehicles Manufacturing (2019)



Statistics Korea (2019)

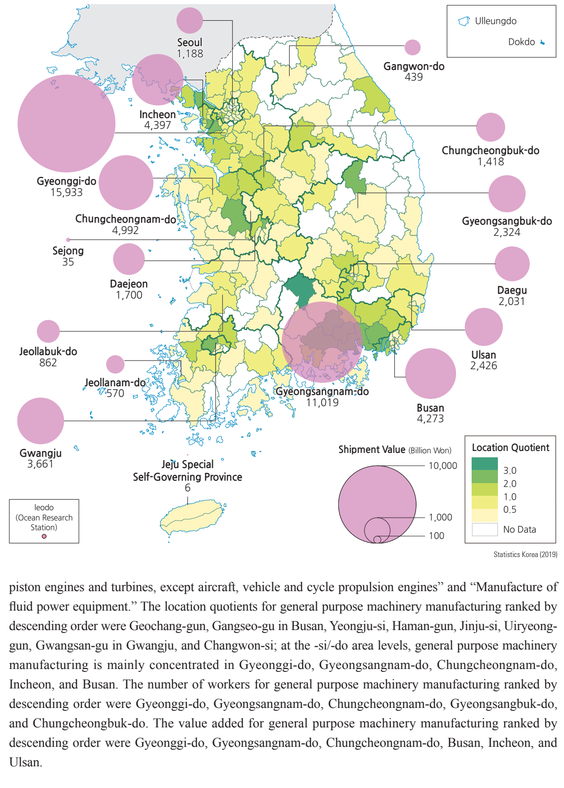
Shipbuiding Industry and General Purpose Machinery Manufacturing

Shipbuilding Industry (2019)



Statistics Korea (2019)

General Purpose Machinery Manufacturing (2019)

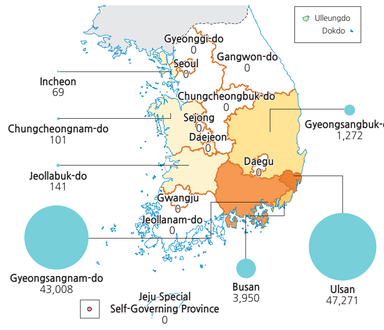


Statistics Korea (2019)

In the 10th Korean Standard Industrial Classification (KSIC), the shipbuilding industry is listed as the "Building of ships and boats." The location quotients for the shipbuilding industry ranked by descending order were Geoje-si, Dong-gu in Ulsan, Yeongam-gun, Goseong-gun (in Gyeongsangnam-do), Heanam-gun, Yeongdo-gu in Busan, Tongyeong-si, Mokpo-si; at the -si/-do area levels, the shipbuilding industry is mainly concentrated in Gyeongsananm-do, Ulsan, and Busan. The top two shipbuilding regions indicate a relatively high level of the location quotient (over 30), suggesting that the shipbuilding industry is very unevenly distributed. The number of workers for the shipbuilding industry ranked by descending order were Ulsan, Gyeongsangnam-do, and Busan. The value added for the shipbuilding industry ranked by descending order were Gyeongsangnam-do, Ulsan, and Busan.

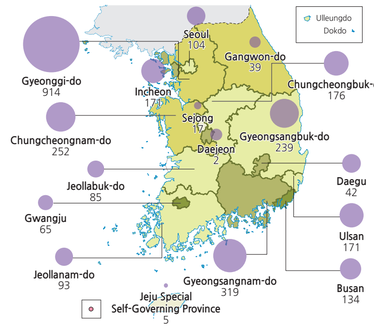
In the 10th Korean Standard Industrial Classification (KSIC), general purpose machinery manufacturing is listed as "Manufacture of general purpose machinery," including "Manufacture of internal combustion piston engines and turbines, except aircraft, vehicle and cycle propulsion engines" and "Manufacture of fluid power equipment." The location quotients for general purpose machinery manufacturing ranked by descending order were Geochang-gun, Gangseo-gu in Busan, Yeongju-si, Haman-gun, Jinju-si, Uiryeong-gun, Gwangsan-gu in Gwangju, and Changwon-si; at the -si/-do area levels, general purpose machinery manufacturing is mainly concentrated in Gyeonggi-do, Gyeongsangnam-do, Chungcheongnam-do, Incheon, and Busan. The number of workers for general purpose machinery manufacturing ranked by descending order were Gyeonggi-do, Gyeongsangnam-do, Chungcheongnam-do, Gyeongsangbuk-do, and Chungcheongbuk-do. The value added for general purpose machinery manufacturing ranked by descending order were Gyeonggi-do, Gyeongsangnam-do, Chungcheongnam-do, Busan, Incheon, and Ulsan.

Number of Employees in Shipbuilding Industry (2019)



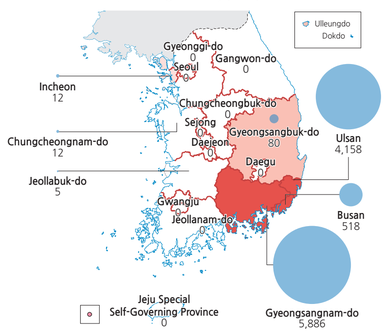
Statistics Korea (2019)

Number of Employees in General Purpose Machinery Manufacturing (2019)



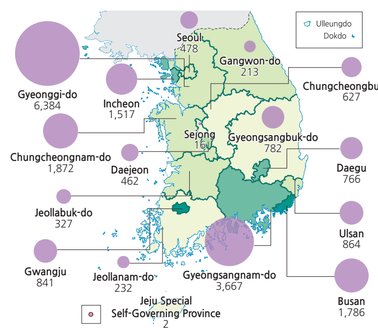
Statistics Korea (2019)

Value Added in Shipbuilding Industry (2019)



Statistics Korea (2019)

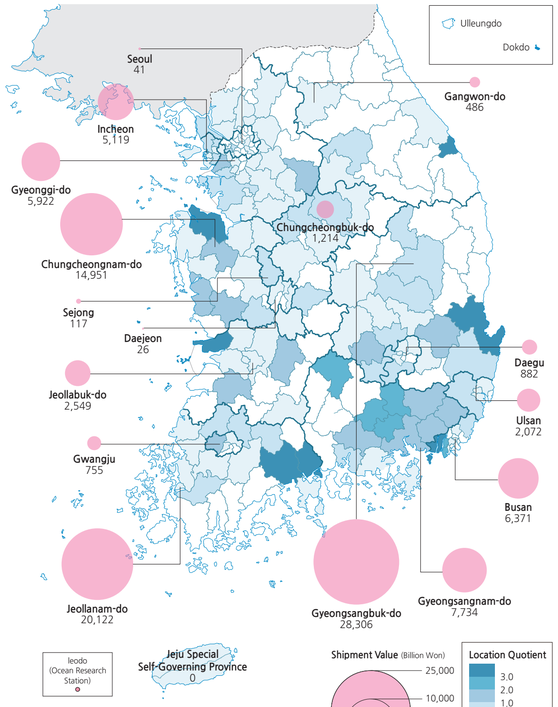
Value Added in General Purpose Machinery Manufacturing (2019)



Statistics Korea (2019)

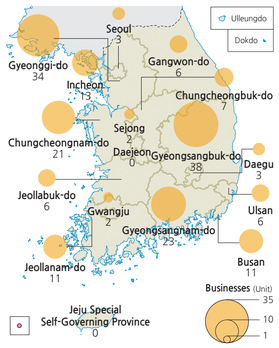
Steel Industry

Steel Industry (2019)

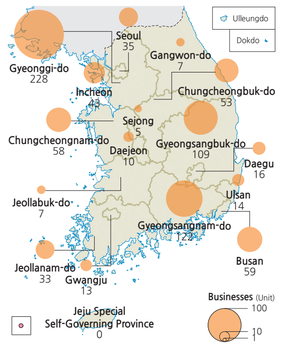


Statistics Korea (2019)

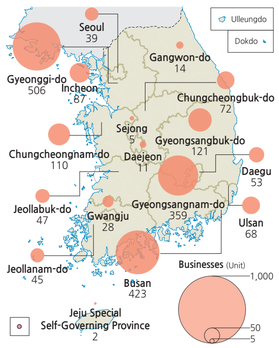
Manufacture of Basic Iron, Steel and Ferro-alloys



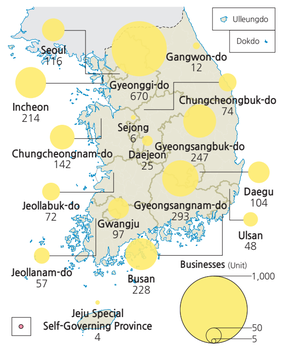
Manufacture of Steel Products by Rolling, Extrusion and Drawing



Manufacture of Pipes, Tubes and Hollow Profiles, of Iron or Steel



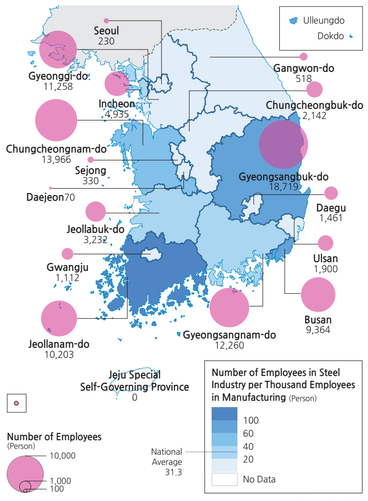
Manufacture of Other Basic Iron and Steel



In the 10th Korean Standard Industrial Classification (KSIC), the steel industry is listed as "Manufacture of basic iron and steel," including "Manufacture of basic iron, steel, and ferro-alloys," "Manufacture of steel products by rolling, extrusion and drawing," "Manufacture of pipes, tubes and hollow profiles, of iron or steel," and "Manufacture of other basic iron and steel." The location quotients for the steel industry ranked by descending order were Gwangyang-si, Pohang-si, Dangjin-si, Dong-gu in Incheon, Suncheon-si, Gunsan-si, Donhea-si, and Gangseo-gu in Busan. The shipment values for the steel industry ranked by descending order were Gyeongsangbuk-do, Jeollanam-do, Chungcheongnam-do, Gyeongsangnam-do, and Busan. The number of workers for the steel industry ranked by descending order were Gyeongsangbuk-do, Chungcheongnam-do, Gyeongsangnam-do, Gyeonggi-do, Jeollanam-do. The production costs for the steel industry ranked by descending order were Gyeongsangbuk-do, Jeollanam-do, Chungcheongnam-do, Gyeongsangnam-do, and Busan. The value added for the steel industry ranked by descending order were Gyeongsangbuk-do, Jeollanam-do, Gyeongsangnam-do, Busan, and Gyeonggi-do.

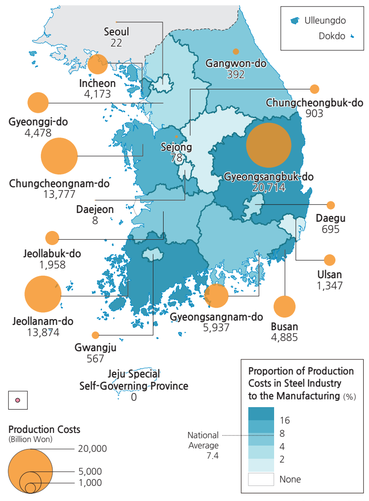
For the steel industry by classification, the highest concentrations of manufacture of basic iron, steel, and ferro-alloys are (in descending order) in Gyeongsangbuk-do, Gyeonggi-do, Gyeongsangnam-do, Chungcheongnam-do, and Incheon. The highest concentrations of manufacture of steel products by rolling, extrusion, and drawing are (in descending order) in Gyeonggi-do, Gyeongsangnam-do, Gyeongsangbuk-do, Busan, and Chungcheongnam-do. The highest concentrations of manufacture of iron or steel are (in descending order) in Gyeonggi-do, Busan, Gyeongsangnam-do, Gyeongsangbuk-do, and Chungcheongnam-do. The highest concentrations of manufacture of other basic iron and steel are (in descending order) in Gyeonggi-do, Gyeongsangnam-do, Gyeongsangbuk-do, Busan, and Incheon.

Number of Employees in Steel Industry (2019)



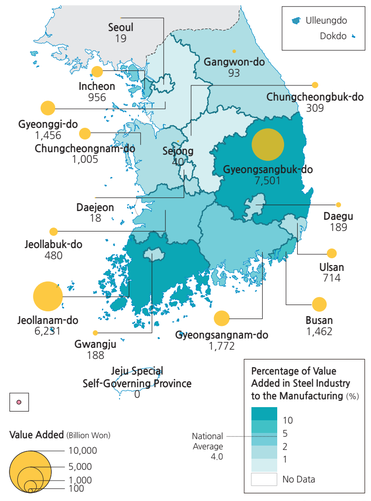
Statistics Korea (2019)

Production Costs in Steel Industry (2019)



Statistics Korea (2019)

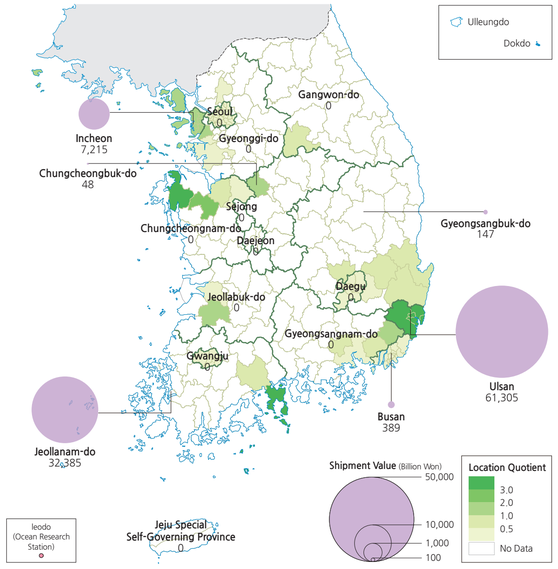
Value Added in Steel Industry (2019)



Statistics Korea (2019)

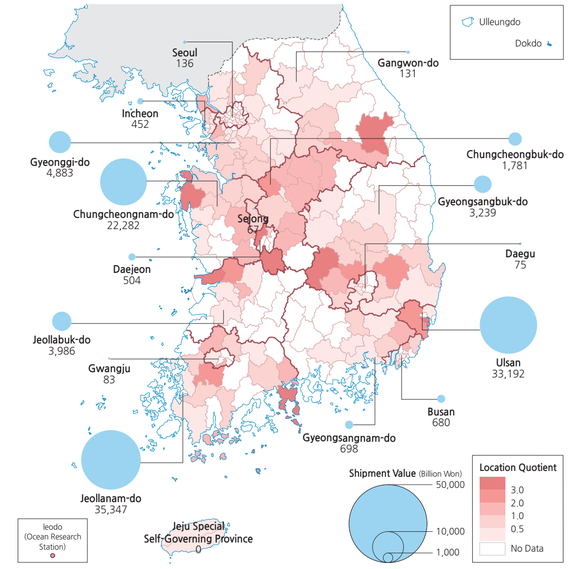
Oil Refining and Chemical Industry

Oil Refining Industry (2019)



Statistics Korea (2019)

Chemical Industry (2019)

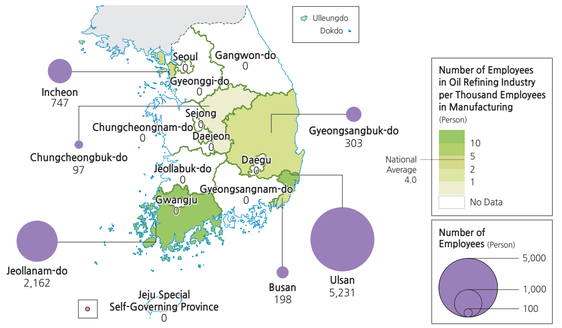


Statistics Korea (2019)

In the 10th Korean Standard Industrial Classification (KSIC), the oil refining industry is listed as "Manufacture of refined petroleum products." The location quotients for the oil refining industry ranked by descending order were Yeosu-si, Seosan-si, Ulsan, Yesan-gun, Yangsan-si; at the -si/-do area levels, the oil refining industry is mainly concentrated in Ulsan, Jeollanam-do, Incheon. The top two oil refining industry regions indicate a relatively high level of the location quotient (over 20), suggesting that the oil refining industry is very unevenly distributed. The number of workers for the oil refining industry ranked by descending order were Ulsan, Jeollanam-do, Incheon. The value added for the oil refining industry ranked by descending order were Jeollanam-do, Ulsan, Incheon.

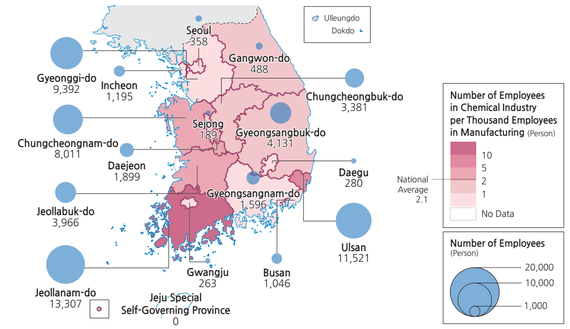
"Manufacture of basic chemicals" and "Manufacture of plastics and synthetic rubber in primary forms." The location quotients for the chemical industry ranked by descending order were Yeosu-si, Nam-gu in Ulsan, Seosan-si, Jeongseon-gun, Gunsan-si, Geumsan-gun, Yuseong-gu in Daejeon, and Gimcheon-si; at the -si/-do area levels, the chemical industry is mainly concentrated in Jeollanam-do, Ulsan, Chungcheongnam-do, Gyeonggi-do, Jeollabuk-do. The number of workers for the chemical industry ranked by descending order were Jeollanam-do, Ulsan, Gyeonggi-do, Chungcheongnam-do, and Gyeongsangbuk-do. The value added for the chemical industry ranked by descending order were Ulsan, Jeollanam-do, Chungcheongnam-do, Gyeonggi-do, and Jeollabuk-do.

Number of Employees in Oil Refining Industry (2019)



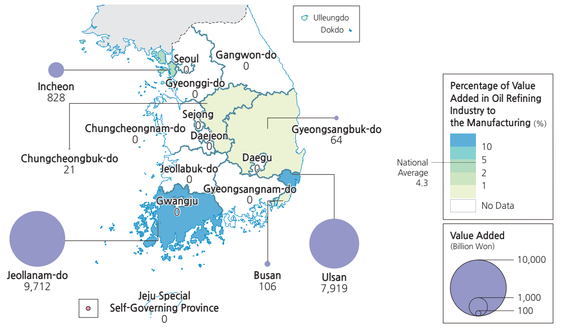
Statistics Korea (2019)

Number of Employees in Chemical Industry (2019)



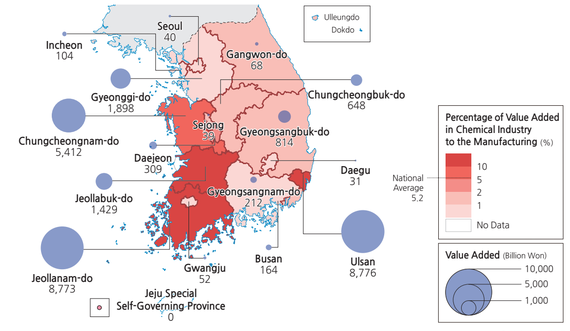
Statistics Korea (2019)

Value Added in Oil Refining Industry (2019)



Statistics Korea (2019)

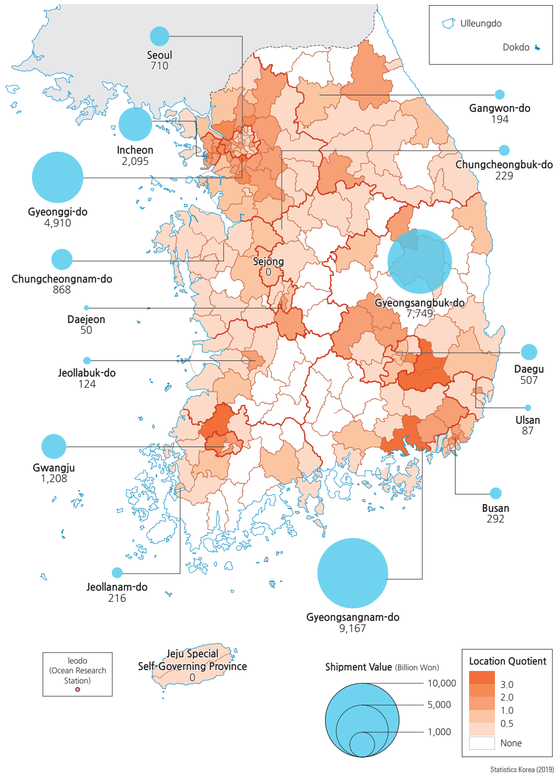
Value Added in Chemical Industry (2019)



Statistics Korea (2019)

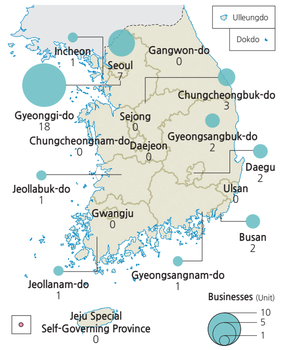
Household Electric Appliances Industry

Household Electric Appliances Industry (2019)

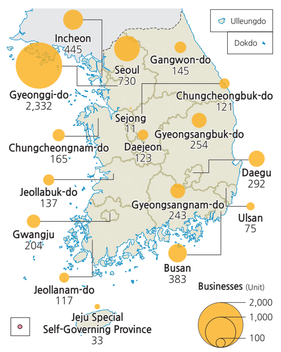


Manufacture of Electronic Video and Audio Equipment

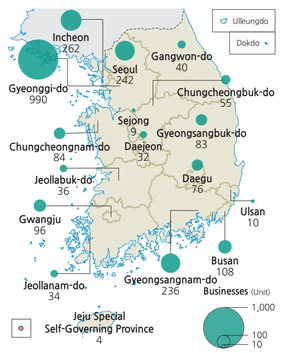
Manufacture of Magnetic and Optical Medium



Manufacture of Electric Tubes and Bulbs and Lighting Equipment



Manufacture of Domestic Appliances

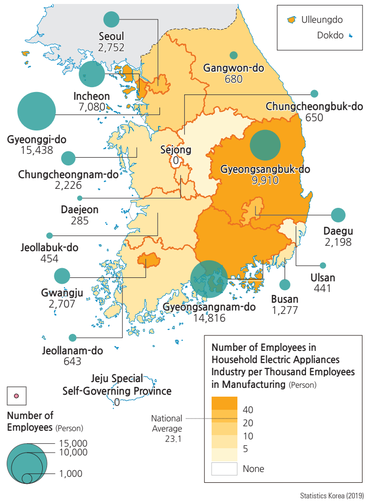


Statistics Korea (2019)

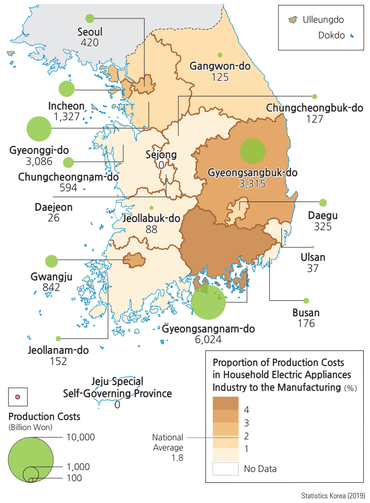
In the 10th Korean Standard Industrial Classification (KSIC), the household electric appliances industry is listed as "Manufacture of electronic video and audio equipment," "Manufacture of magnetic and optical medium," "Manufacture of electric tubes and bulbs and lighting equipment," and "Manufacture of domestic appliances." The location quotients for the household electric appliances industry ranked by descending order were Cheongdo-gun, Gwacheon-si, Changwon-si, Gyeongsan-si, and Jangseong-gun. The shipment values for the household electric appliances industry ranked by descending order were Gyeongsangnam-do, Gyeongsangbuk-do, Gyeonggi-do, Incheon, and Gwangju. The number of workers and for household, electric appliances industry ranked by descending order were Gyeonggi-do, Gyeongsangnam-do, Gyeongsangbuk-do, Incheon, and Seoul. The production costs for the household electric appliances industry ranked by descending order were Gyeongsangnam-do, Gyeongsangbuk-do, Gyeonggi-do, Incheon, and Gwangju. The value added for the household electric appliances industry ranked by descending order were Gyeongsangbuk-do, Gyeongsangnam-do, Gyeonggi-do, Incheon, and Gwangju.

For the household electric appliances industry by classification, the highest concentrations of manufacture of electronic video and audio equipment are (in descending order) in Gyeonggi-do, Seoul, Incheon, Gyeongsangbuk-do, and Gyeongsangnam-do. The highest concentrations of manufacture of magnetic and optical medium are (in descending order) in Gyeonggi-do, Seoul, and Chungcheongbuk-do. The highest concentrations of manufacture of electric tubes and bulbs and lighting equipment are (in descending order) in Gyeonggi-do, Seoul, Incheon, Busan, and Daegu. The highest concentrations of manufacture of domestic appliances are (in descending order) in Gyeonggi-do, Incheon, Seoul, Gyeongsangnam-do, and Busan.

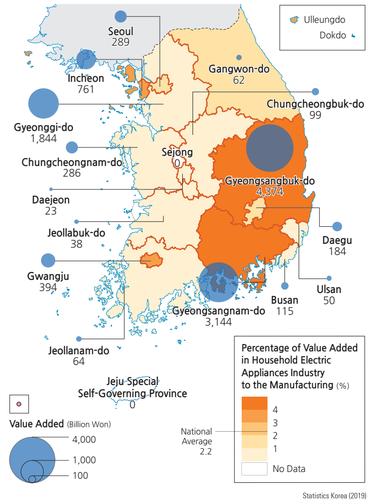
Number of Employees in Household Electric Appliances Industry (2019)



Production Costs in Household Electric Appliances Industry (2019)



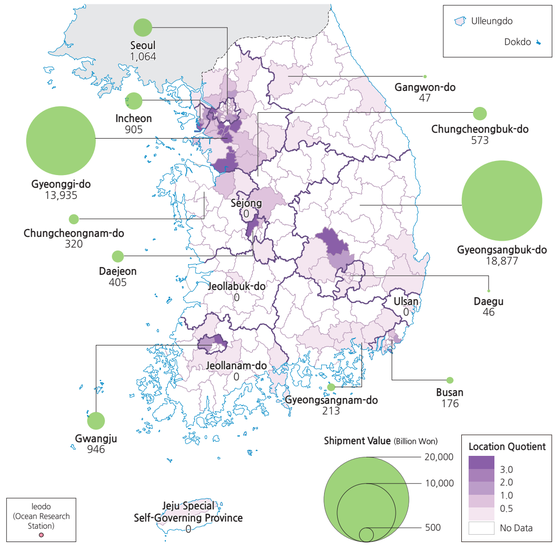
Value Added in Household Electric Appliances Industry (2019)



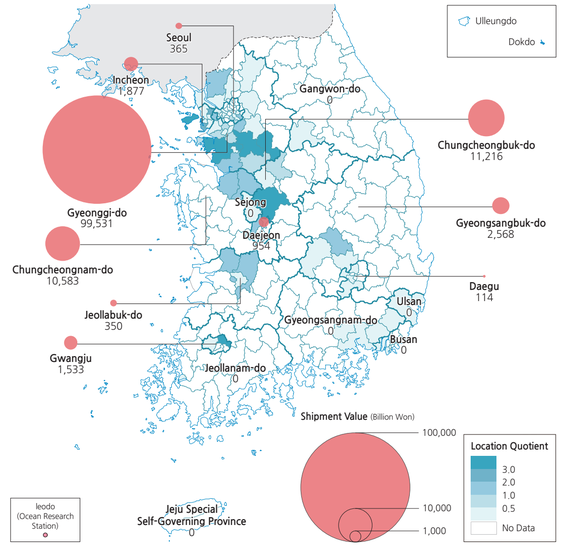
Statistics Korea (2019)

Communication and Broadcasting Apparatures and Semiconductor Manufacturing

Communication and Broadcasting Apparatuses Manufacturing (2019)



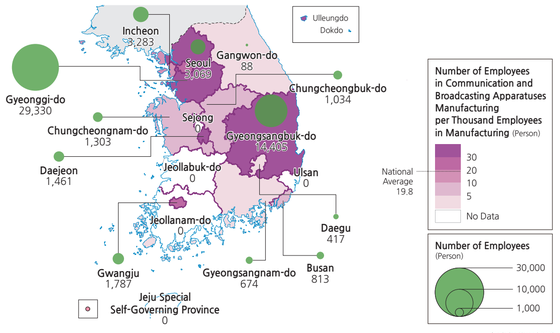
Semiconductor Manufacturing (2019)



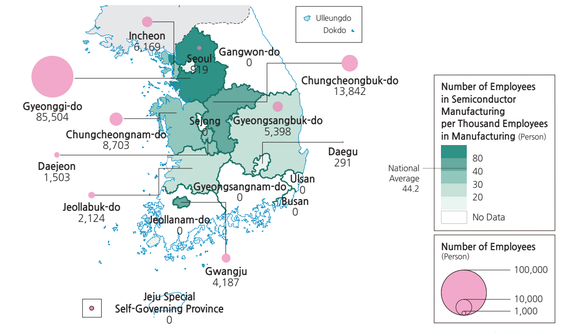
In the 10th Korean Standard Industrial Classification (KSIC), communication and broadcasting apparatuses manufacturing is listed as "Manufacture of communication and broadcasting apparatuses," including "Manufacture of wire communication apparatuses," and "Manufacture of broadcasting and wireless communication apparatuses." The location quotients for communication and broadcasting apparatuses manufacturing ranked by descending order were Suwon-si, Gumi-si, Seongnam-si, Anyang-si, Gangseo-gu in Seoul, Pyeongtaek-si, and Yuseong-gu in Daejeon; at the -si/-do area levels, communication and broadcasting apparatuses manufacturing is mainly concentrated in Gyeongsangbuk-do, Gyeonggi-do, Seoul, Gwangju, and Incheon. The number of workers for communication and broadcasting apparatuses manufacturing ranked by descending order were Gyeonggi-do, Gyeongsangbuk-do, Incheon, Seoul, and Gwangju. The value added for communication and broadcasting apparatuses manufacturing ranked by descending order were Gyeongsangbuk-do, Gyeonggi-do, Seoul, Gwangju, and Incheon.

In the 10th Korean Standard Industrial Classification (KSIC), semiconductor manufacturing is listed as "Manufacture of semiconductor," including "Manufacture of electronic integrated circuits," and "Manufacture of diodes, transistors, and similar semiconductor devices." The location quotients for semiconductor manufacturing ranked by descending order were Icheon-si, Jung-gu in Incheon, Yongin-si, Buk-gu in Gwangju, Hwaseong-si, and Cheongju-si; at the -si/-do area levels, semiconductor manufacturing is mainly concentrated in Gyeonggi-do, Chungcheongbuk-do, Chungcheongnam-do, Gyeongsangbuk-do, and Incheon. The number of workers for semiconductor manufacturing ranked by descending order were Gyeonggi-do, Chungcheongbuk-do, Chungcheongnam-do, Incheon, and Gyeongsangbuk-do. The value added for semiconductor manufacturing ranked by descending order were Gyeonggi-do, Chungcheongbuk-do, Chungcheongnam-do, Gyeongsangbuk-do, and Gwangju.

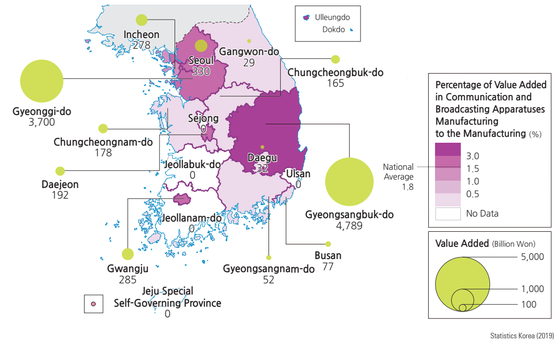
Number of Employees in Communication and Broadcasting Apparatuses Manufacturing (2019)



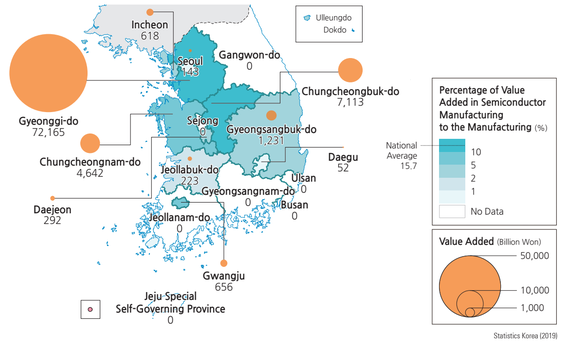
Number of Employees in Semiconductor Manufacturing (2019)



Value Added in Communication and Broadcasting Apparatuses Manufacturing (2019)



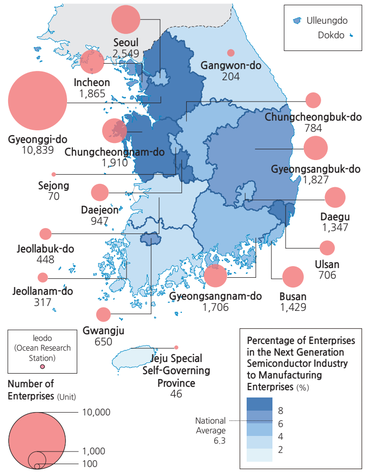
Value Added in Semiconductor Manufacturing (2019)



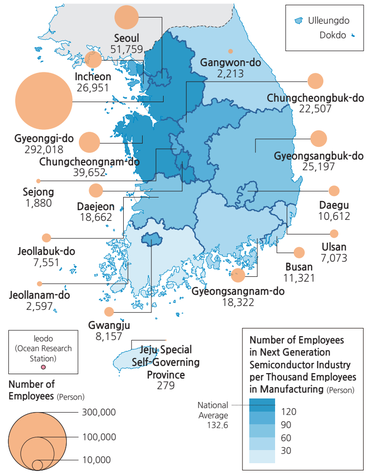
Statistics Korea (2019)

Top Five New Emerging Industries

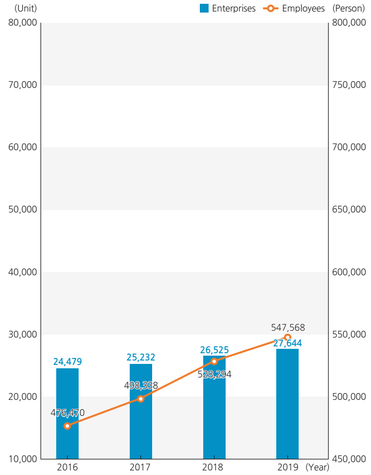
Number of Enterprises in Next Generation Semiconductor Industry (2019)



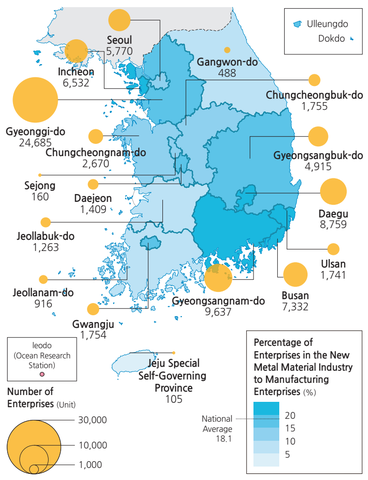
Number of Employees in Next Generation Semiconductor Industry (2019)



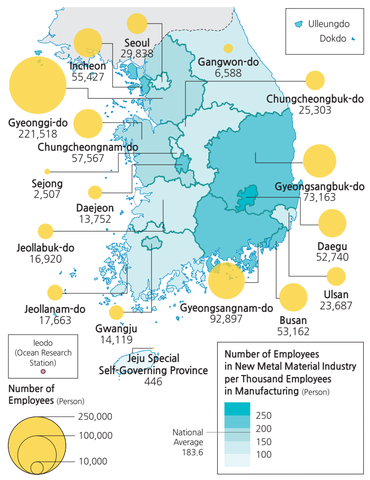
Changes in Next Generation Semiconductor Industry



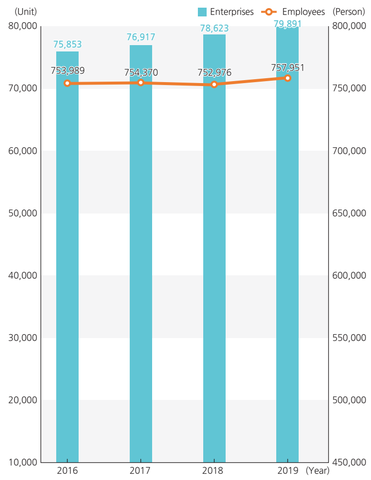
Number of Enterprises in New Metal Material Industry (2019)



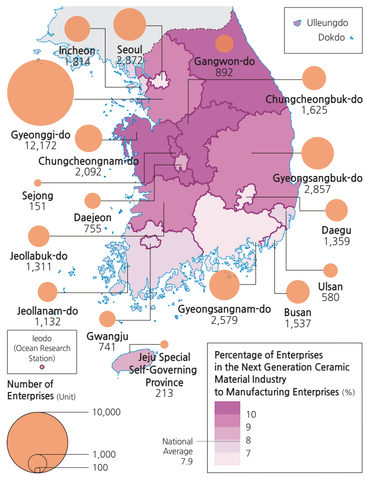
Number of Employees in New Metal Material Industry (2019)



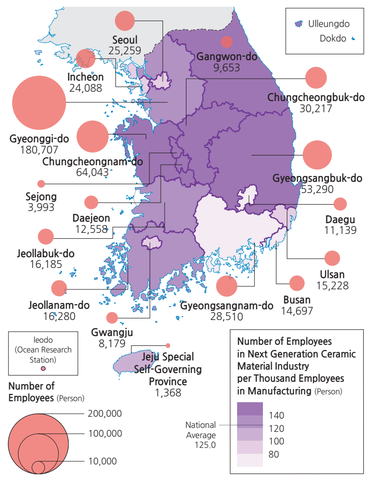
Changes in New Metal Material Industry



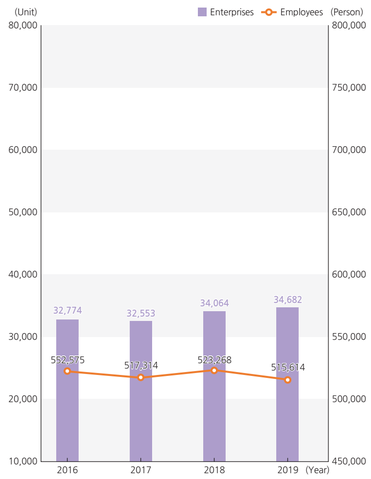
Number of Enterprises in Next Generation Ceramic Material Industry (2019)



Number of Employees in Next Generation Ceramic Material Industry (2019)

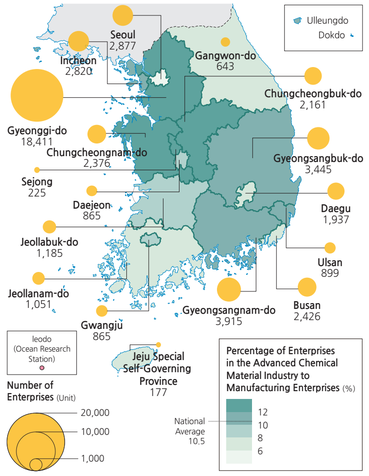


Changes in Next Generation Ceramic Material Industry

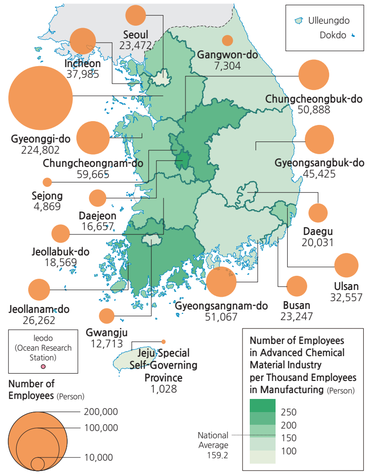


Statistics Korea (2020)

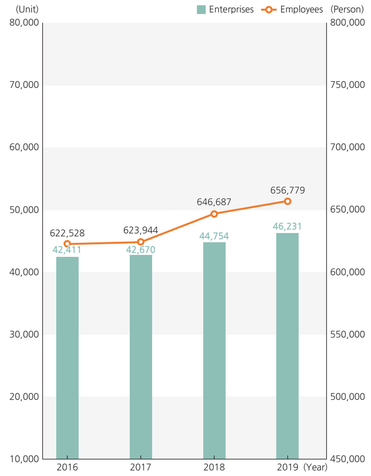
Number of Enterprises in Advanced Chemical Material Industry (2019)



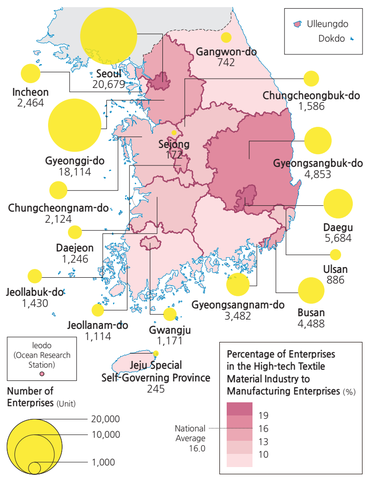
Number of Employees in Advanced Chemical Material Industry (2019)



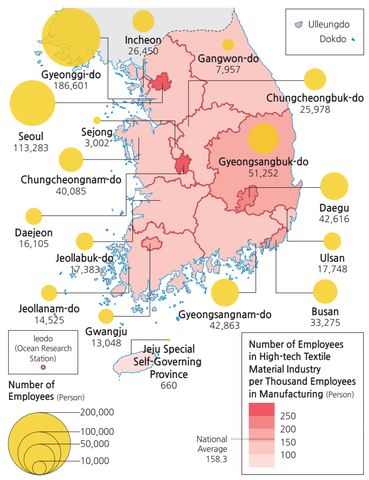
Changes in Advanced Chemical Material Industry



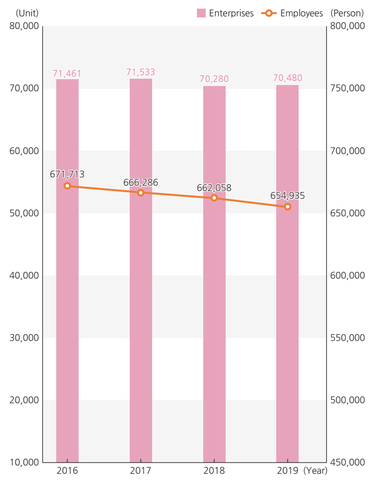
Number of Enterprises in High-tech Textile Material Industry (2019)



Number of Employees in High-tech Textile Material Industry (2019)



Changes in High-tech Textile Material Industry



Statistics Korea (2020)

In March 2021, the Ministry of Trade, Industry and Energy (MOTIE) announced 'the top five emerging industries': 1) the next generation semiconductor industry, 2) the new metal material industry, 3) the next generation ceramic material industry, 4) the advanced chemical material industry, and 5) the high-tech textile material industry, and emphasized the necessity of nurturing the specialized human resources suitable for the industries. The maps of the numbers of enterprises and employees indicate the characteristics of spatial distribution and the recent changes in the top five emerging industries based on the 5-digit codes of KSIC, which are jointly suggested by the Ministry of Trade, Industry and Energy (MOTIE), The Korea Institute for Advancement of Technology (KIAT), and The Korea Institute for Industrial Economics and Trade (KIET).

'The next generation semiconductor industry' designs and manufactures semiconductors that are used as cutting-edge core industries, such as artificial intelligence robots, virtual reality or augmented reality contents, autonomous vehicles, and next generation mobile communications. The next generation semiconductor industry is subdivided into memory semiconductors, system semiconductors, semiconductor manufacturing processes and facilities, and semiconductor materials. The number of enterprises and employees for the next generation semiconductor industry ranked by descending order were Gyeonggi-do, Seoul, Chungcheongnam-do, Incheon, and Gyeongsangbuk-do.

The new metal material industry develops or manufactures new metal materials to improve the properties of existing materials through alloys. The new metal material industry is subdivided into ultra-supercritical steel materials, high functionality non-ferrous materials, and new composite materials. The number of enterprises for the new metal material industry ranked by descending order were Gyeonggi-do, Gyeongsangnam-do, Daegu, Busan, and Incheon. The number of employees for the new metal material industry ranked by descending order were Gyeonggi-do, Gyeongsangnam-do, Gyeongsangbuk-do, Chungcheongnam-do, and Incheon.

The next generation ceramic material industry develops or manufactures new ceramic materials to improve the properties of existing materials using natural and synthetic materials. The next generation ceramic material industry is subdivided into optoelectronic ceramic materials, artificial intelligence ceramic materials, energy and environmental materials, medical ceramic materials, and living industry ceramic materials. The number of enterprises for next generation ceramic material industry ranked by descending order were Gyeonggi-do, Seoul, Gyeongsangbuk-do, Gyeongsangnam-do, and Chungcheongnam-do. The number of employees for the next generation ceramic material industry ranked by descending order were Gyeonggi-do, Chungcheongnam-do, Gyeongsangbuk-do, Chungcheongbuk-do, and Gyeongsangnam-do.

The advanced chemical material industry develops or manufactures high value-added chemical materials by giving special functions, such as heat resistance, strength, optics, safety, and eco-friendliness. The advanced chemical material industry is subdivided into precision function chemical materials, high-tech polymer materials, and high-tech materials for industry. The number of enterprises for advanced chemical material industry ranked by descending order were Gyeonggi-do, Gyeongsangnam-do, Gyeongsangbuk-do, Seoul, and Incheon. The number of employees for advanced chemical material industry ranked by descending order were Gyeonggi-do, Chungcheongnam-do, Gyeongsangnam-do, Chungcheongbuk-do, and Gyeongsangbuk-do.

The high-tech textile material industry develops or manufactures yarn and textile materials with special functions. The high-tech textile material industry is subdivided into fashion tech textile materials, technical textile material for consumer goods, and technical textile material for producer goods. The number of enterprises for the high-tech textile material industry ranked by descending order were Seoul, Gyeonggi-do, Daegu, Gyeongsangbuk-do, and Busan. The number of employees for the high-tech textile material industry ranked by descending order were Gyeonggi-do, Seoul, Gyeongsangbuk-do, Gyeongsangnam-do, and Daegu.

According to the changes of the top five emerging industries in the last four years, the numbers of enterprises and employees for three industries, such as the next generation semiconductor industry, the new metal material industry, and the advanced chemical material industry, were increased from 2016 to 2019. In the case of the advanced chemical material industry, the number of enterprises is increased, whereas the number of employees is slightly decreased. However, the numbers of enterprises and employees of the high-tech textile material industry were decreased during the same period.