

Economy and Industry

The economic transition in Korea over the past 60 years can be easily attributed to both industrialization and globalization. As its industrial structure progressed rapidly from the incorporation of primary industries to the inclusion of secondary and tertiary industries, Korea achieved highly compressed economic growth. The industrial policy, especially in light of the government's export-oriented development strategies, was a success. However, as both internal and external circumstances have changed since the 1980s, restructuring became necessary; efforts to develop intellectual talent and to conduct research and development activities were made across all industries. The government focused on fostering the private sector; and as a result, the status of chaebols (Korean conglomerates) grew continuously.

Assessing Korea's economic status through the interpretation of its national GDP in world rankings indicates an upward trend. Korea was ranked 31st in 1960, 41st in 1965, 32nd in 1970, and 30th in 1975. It then steadily moved up to 28th in 1980, 18th in 1985, 15th in 1990, and 11th in 1995. It has been residing in the 12th-15th range for the last decade.

Since the founding of the Republic of Korea in 1948 until the early 1960s, Korea's economy depended primarily on agriculture, and its economic system

and industrial structure resembled that of other underdeveloped countries. During that period, agriculture, forestry, and fishery accounted for more than 40% of domestic production and more than 60% of employment. On the other hand, manufacturing accounted for less than 20% of domestic production, and less than 10% of employment. This lack of manufacturing was due to the fact that under the Japanese colonial government the main facilities needed for war activities were located in North Korea. Additionally, those manufacturing facilities that were located in the South were heavily damaged during the Korean War. The 1950s post-war years ushered in a time of political, economic, and social confusion.

Since the early 1960s, Korea began to focus on economic growth through industrialization, and it was during this time that manufacturing became the key to Korea's economic development. During the Park Chung-hee administration, which began in 1961, economic development was placed at the center of its agenda when the Five-year Economic Development Plan was enacted in 1962. Export-led industrialization and economic growth were the new strategic foci, and the government-led industrial development policy was emphasized. In the 1960s, an export-led strategy based on light industries was promoted with fabric, plywood, wigs, and shoes becoming the main

exports. In the 1970s, the government began to promote heavy chemical industries and the main industrial focus shifted from light to heavy industries overall. The export products changed as well. In the early 1960s, minerals and raw silk were on the top of the list; however, these were replaced by fiber, clothing, and shoes between 1970 and 1980. After 1990, high technology products such as semiconductors and computers became important exports.

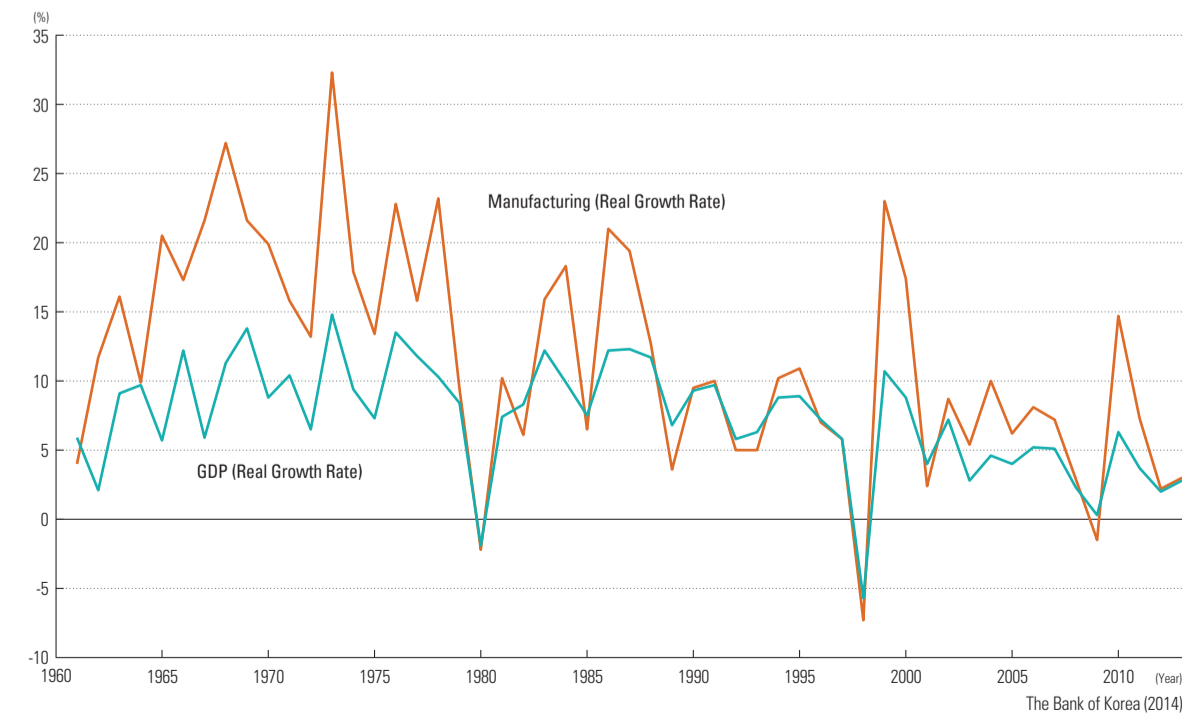
The economic growth trend indicated through changes in the nation's GDP real growth rate reveals that it increased from 4% in the pre-1960s to 8.4% in the 1960s; it increased to 9.0% in the 1970s and to 9.7% in the 1980s. This trend indicates that a high growth rate of 10% was sustained for a considerable period. Manufacturing, in particular, maintained a well above 10% average annual growth rate at 16.8% in the 1960s, 15.8% in the 1970s, and 12.2% in the 1980s even with decadal fluctuations. The high growth was especially visible from the early 1960s to mid-1970s. This pace slowed down after that and dropped to 6.5% in the 1990s and to a mere 4% in the 2000s. The significant drop came during the 1979 Oil Crisis, the Asian foreign exchange crisis in 1997, and the 2008 global financial crisis when the real growth rate of manufacturing industry recorded a negative trend. However, it soon recovered through successful economic

restructuring and once again realized growth even though the rate has been somewhat impaired.

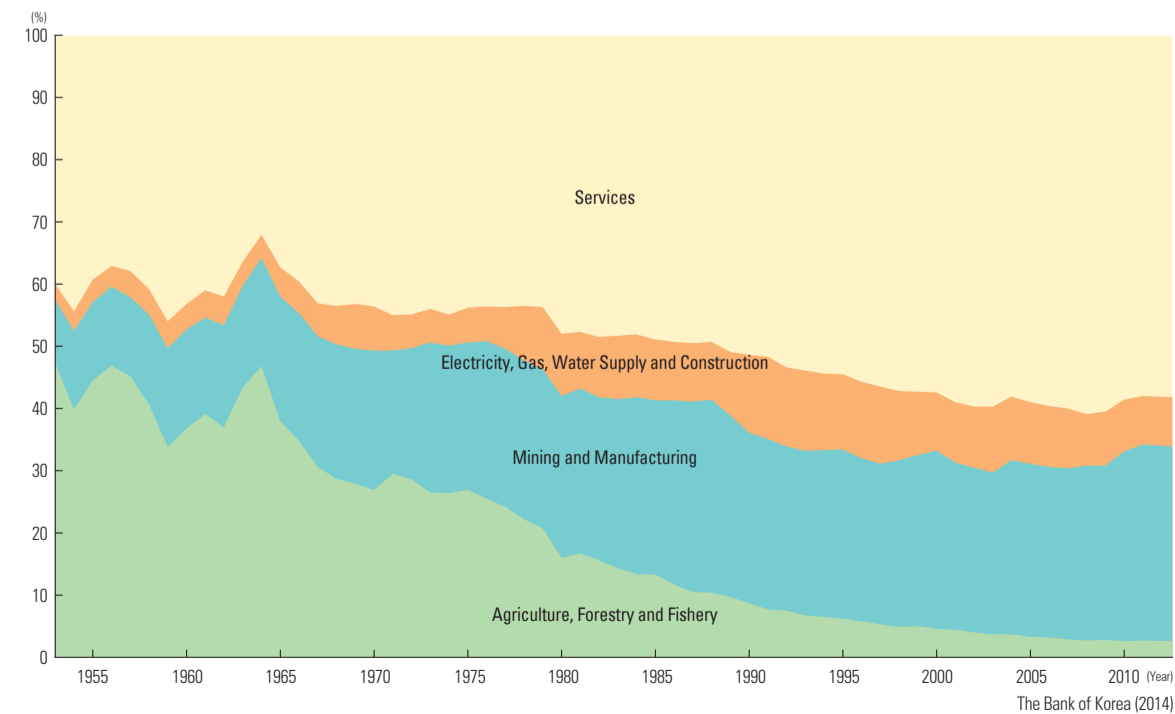
Agriculture, forestry, and fishery dropped from 40% in the 1950s to 3% in the 2000s while that of manufacturing increased from 12% to 27.4% during the same period. The service industry has soared from 41.1% to 59.5%. This implies that Korea's industrial structure rapidly shifted from primary to secondary and tertiary industries. Light industry led overall industrial growth between 1950 and 1970; however, it was surpassed by the heavy chemical industry, which rapidly grew since 1970.

The success in industrialization and globalization greatly impacted the national landscape. As a result, both industrial growth and population settlement concentrated in the greater capital area while major industries developed mainly along the Gyeongbu Axis. The government-led industrial policy, which began in 1960, resulted in growth pole development in certain areas, and the export-led industrial development occurred in the southeastern coastal cities due to their designation as export/import industrial centers. As a corrective measure to such imbalanced growth, factory regulation in the capital area was instituted, industrial facilities were relocated to rural areas, and local businesses were fostered through the implementation of balanced growth policies.

GDP and the Real Growth Rate of Manufacturing

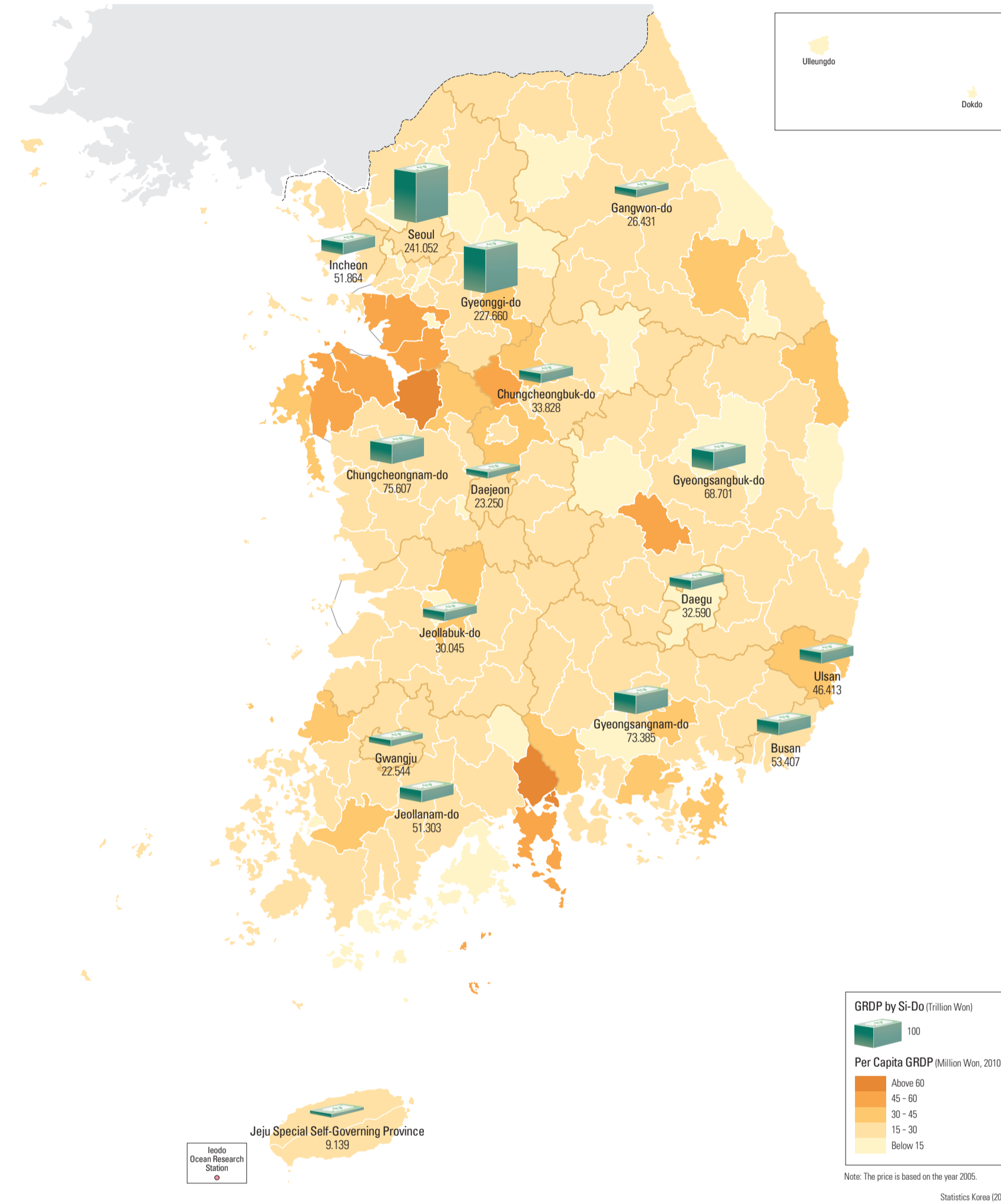


The Share of Value Added by Industry



Economic Growth

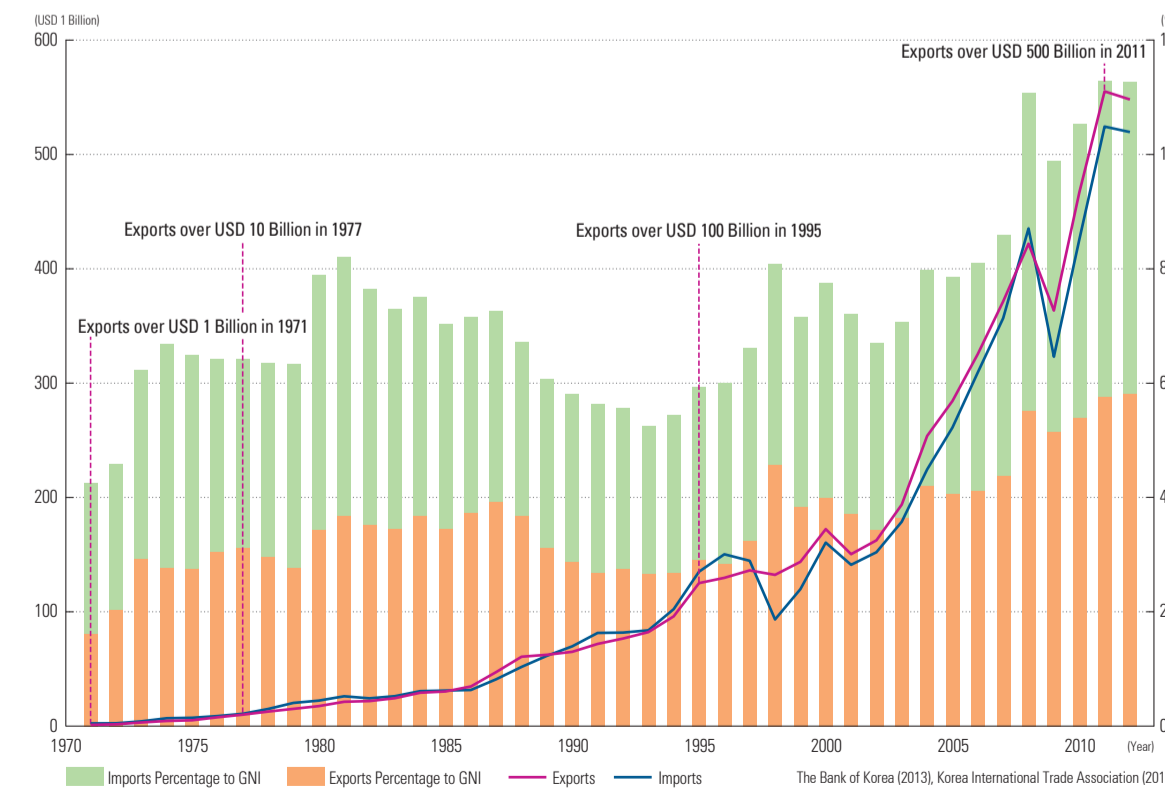
Gross Regional Domestic Product



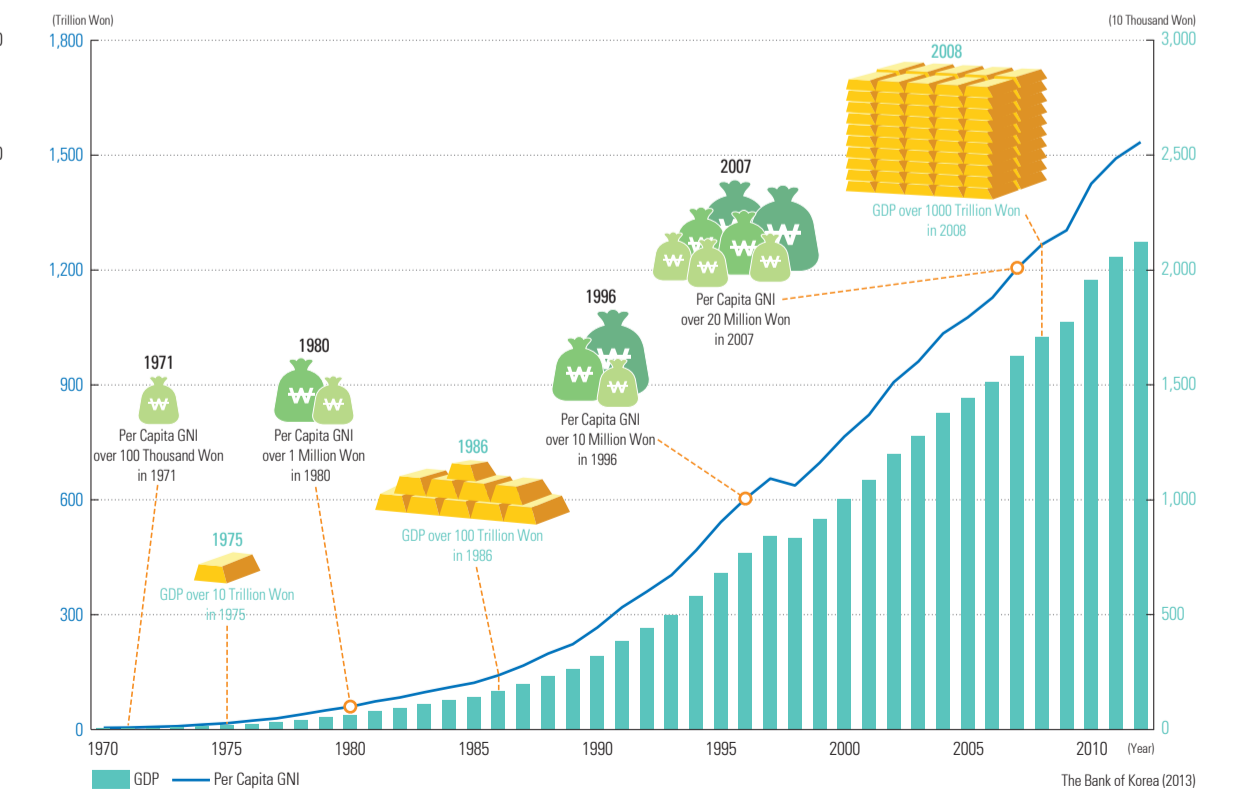
The Gross Regional Domestic Product (GRDP) and per capita Gross Regional Domestic Product are examples of regional economic indicators that gauge Korea's economic development and its current status. The GRDP indicates the total value of final products that were newly created within a certain region during a certain period. Through the GRDP, one can identify the size of the economy, the production level, and the industrial structure of each region, and when this measurement is applied to the national scale, it becomes the Gross Domestic Product (GDP). However, the assessment is not always consistent due to differences in the data and methods used at the time of estimation. The Gross National Income (GNI) indicates the income purchasing power, which is calculated by evaluating and adding the total amount of value added (based on market price) as created by all economic agents of a nation during a certain period, including households, firms, as well as the government. While the GDP is a production indicator used to measure production activities of a nation, the GNI is an income indicator used to measure the welfare level of the people of a nation.

The nominal GDP of Korea posted 1.1975 trillion USD in 2013, ranking it 15th in the world, and 12th in purchasing power parity. Korea's GDP was ranked 31st in 1960, 32nd in 1970, and 28th in 1980. With the rapid economic development in the 1980s, it climbed to 18th in 1985 and 15th in 1990. It has remained in the 11th-15th range since then. The increase of the GDP reached an excess of 10 trillion won in 1975, and it exceeded 100 trillion won in 1986, reflecting a tenfold growth within 11 years. In 2008, 33 years after it exceeded 10 trillion won, it exceeded 1,000 trillion won, which is 100 times over that of 1975, a vivid indicator of Korea's compressed economic growth by any measure. The shock of the 1997 Asian foreign exchange crisis reduced growth temporarily in 1998, but since then it has only continued to increase year after year. The per capita GNI was 100,000 won in 1971, but by 1980 it had jumped to 1 million won. By 1996, it exceeded 10 million won, and by 2007 the number exceeded 20 million won and stands above 25 million won as of 2013.

The Growth of Import and Export

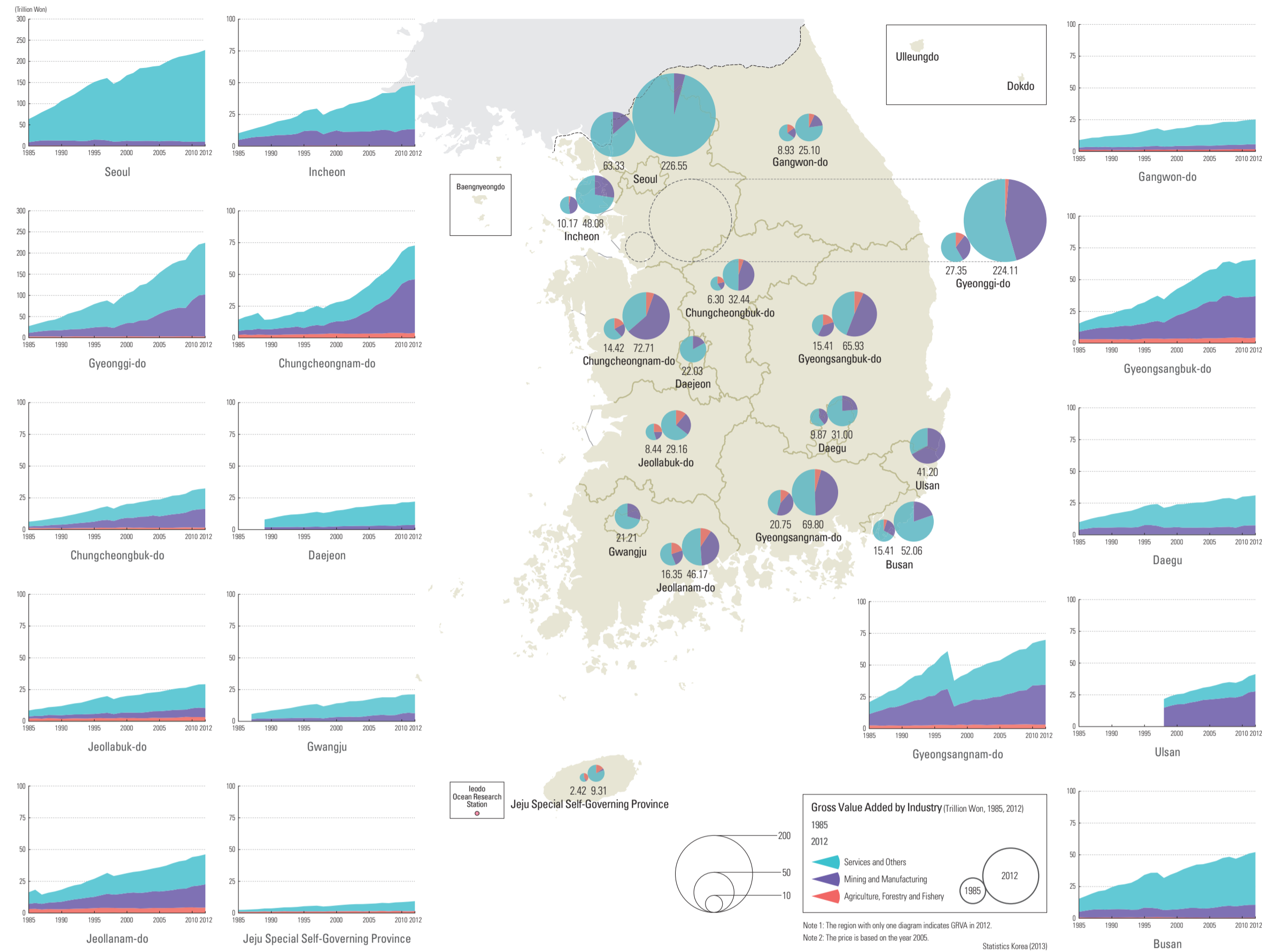


The Growth of GDP and per Capita GNI



Industrial Structure and Space

The Growth of Gross Regional Value Added by Industry



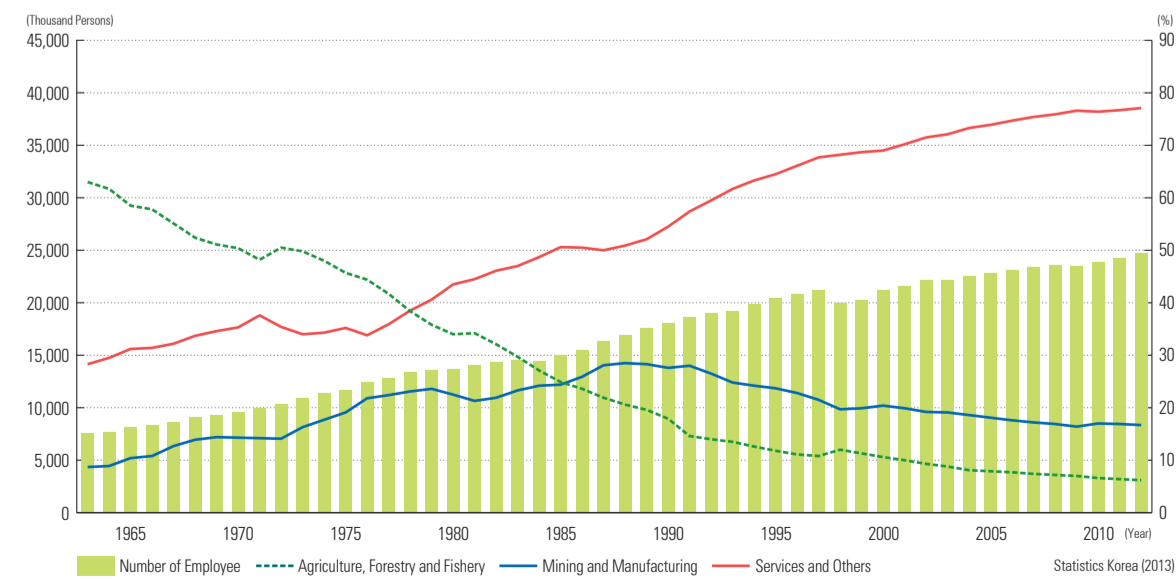
The change in industrial structure is usually assessed by reviewing changes in the share of agriculture, forestry, fishery, mining, manufacturing, service, and other industries. Many indicators can be used. However, the number of employees in each industry proves to be an excellent indicator. Since the 1960s, the agriculture, forestry, fishery, and mining industries in Korea have suffered a steady decrease in employment while manufacturing, service, and other industries increased. Similar patterns of decrease in agriculture along with a

concordant increase in manufacturing have also occurred in other countries, but what is unique about Korea's changing employment pattern is that it happened very rapidly. Even advanced countries went through such changes, but saw their transformation unfold over hundreds of years. Korea, on the other hand, underwent this dramatic shift in about 30 years. As such, Korea's industrialization can truly be characterized as rapid and compressed economic growth. To examine the industrial structure of each city and

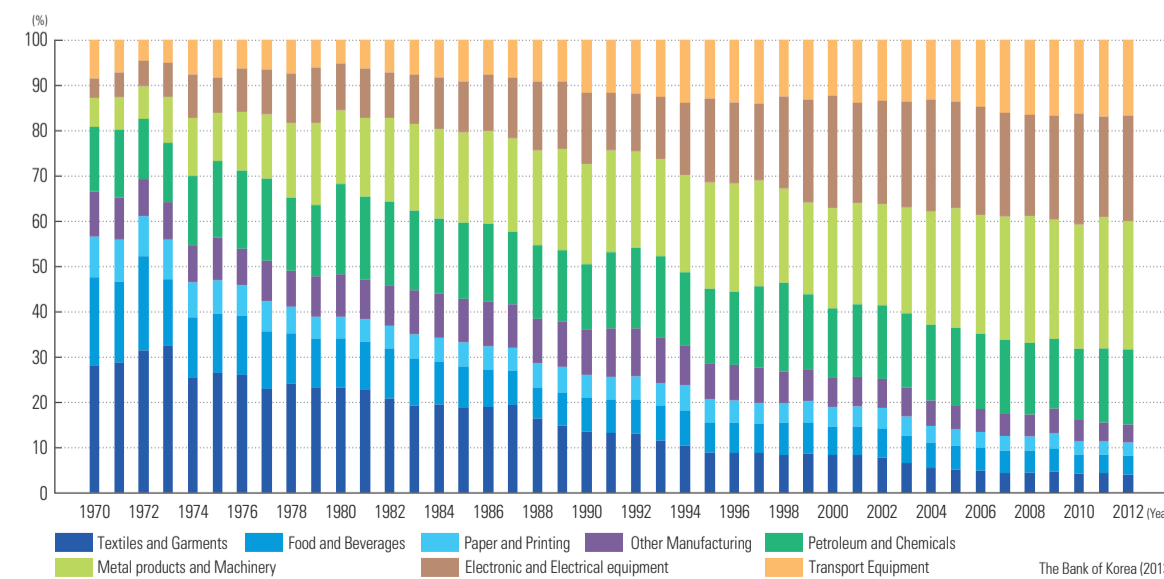
province between 1985 and 2012, one must review the changes in total value. In all regions, the total value added grew for 27 years. Rapid growth was seen especially in Gyeonggi-Do. In all regions, the agriculture, forestry, and fishery, share decreased, and metropolitan areas showed a decrease in manufacturing and an increase in service and other industries. Seoul saw a 95.5% in service and other industries, and Jeju saw an 81.3% in service and other industries of the total gross value added in the region, which demonstrates that the industrial structure is

becoming service-oriented in these two regions. Because the rapid economic growth of Korea was led by the manufacturing industry Korea's industrial growth overall has become synonymous with the manufacturing industry. In recent years, however, the focus of Korea's economy has shifted away from manufacturing towards high-technology-intensive industries.

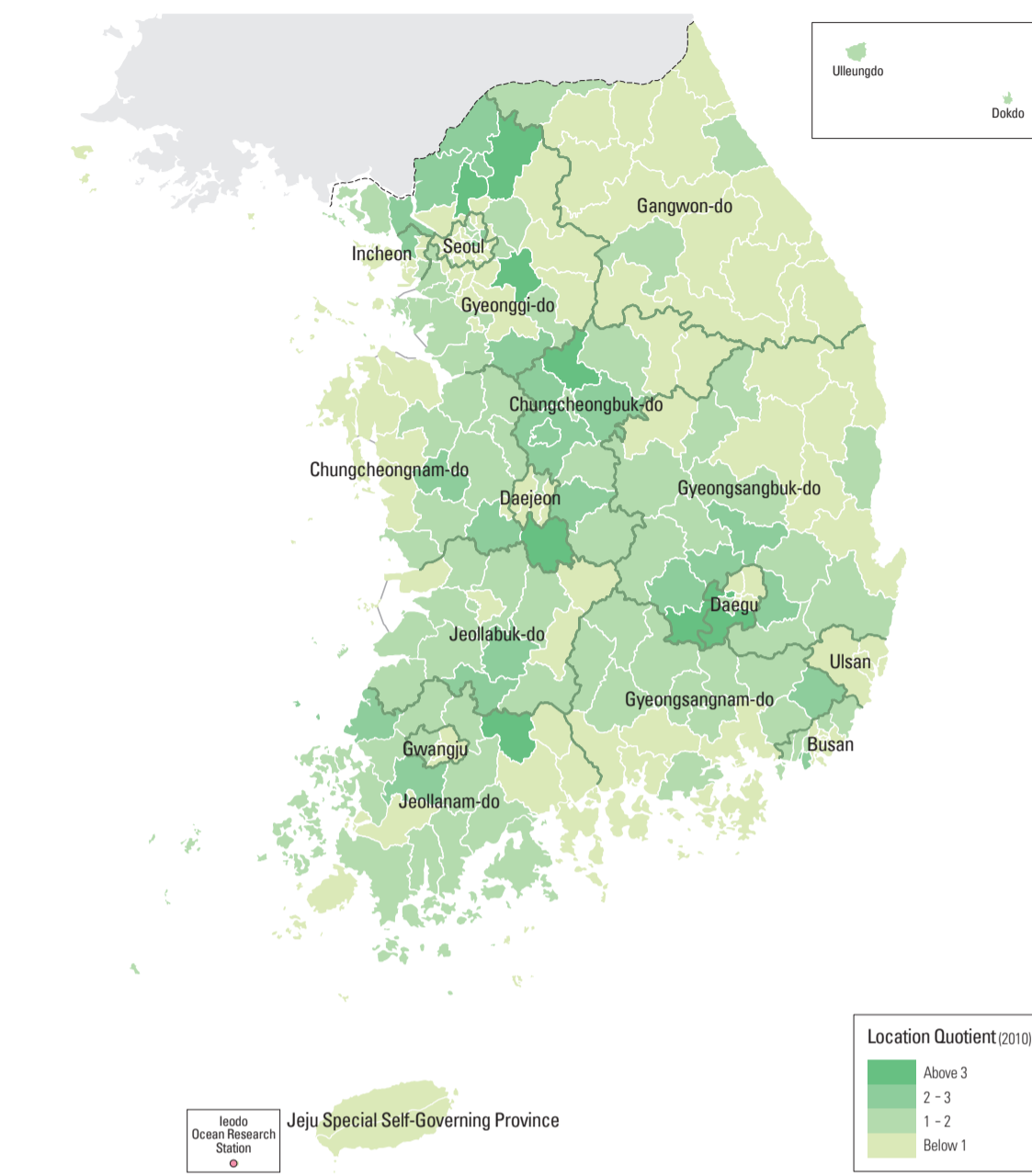
The Change of Industrial Structure



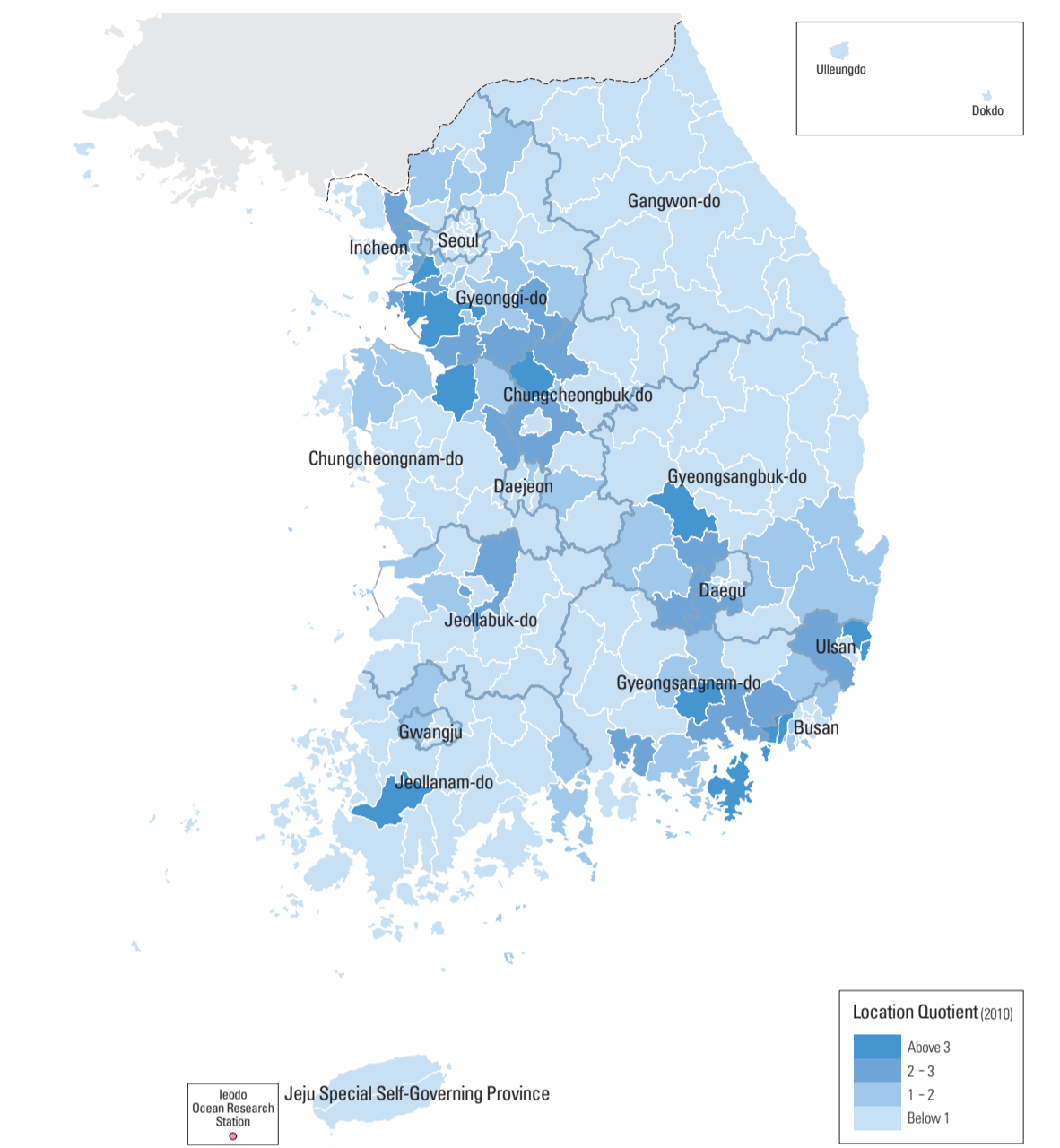
The Change of Manufacturing Industry Structure



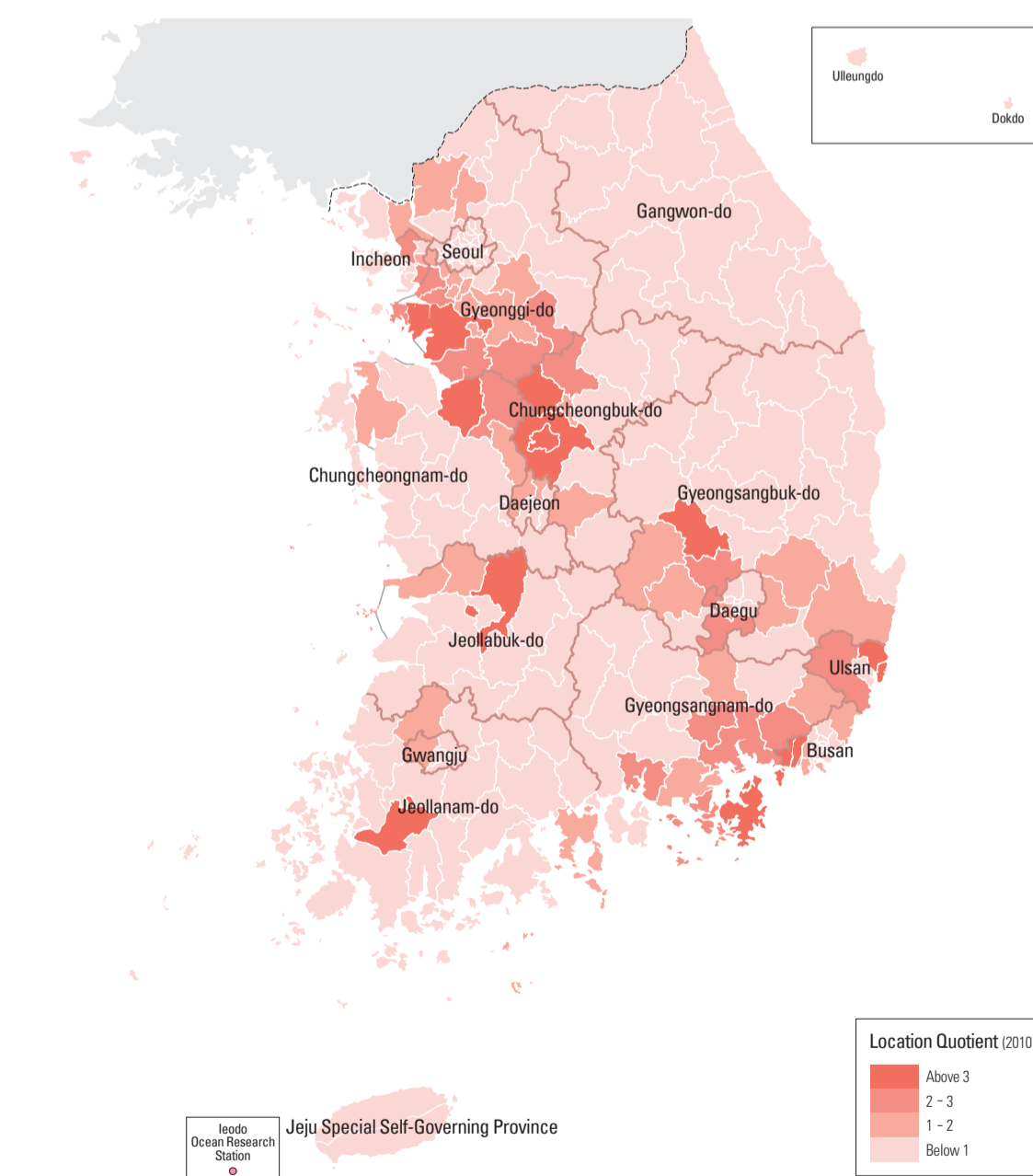
Light Industries



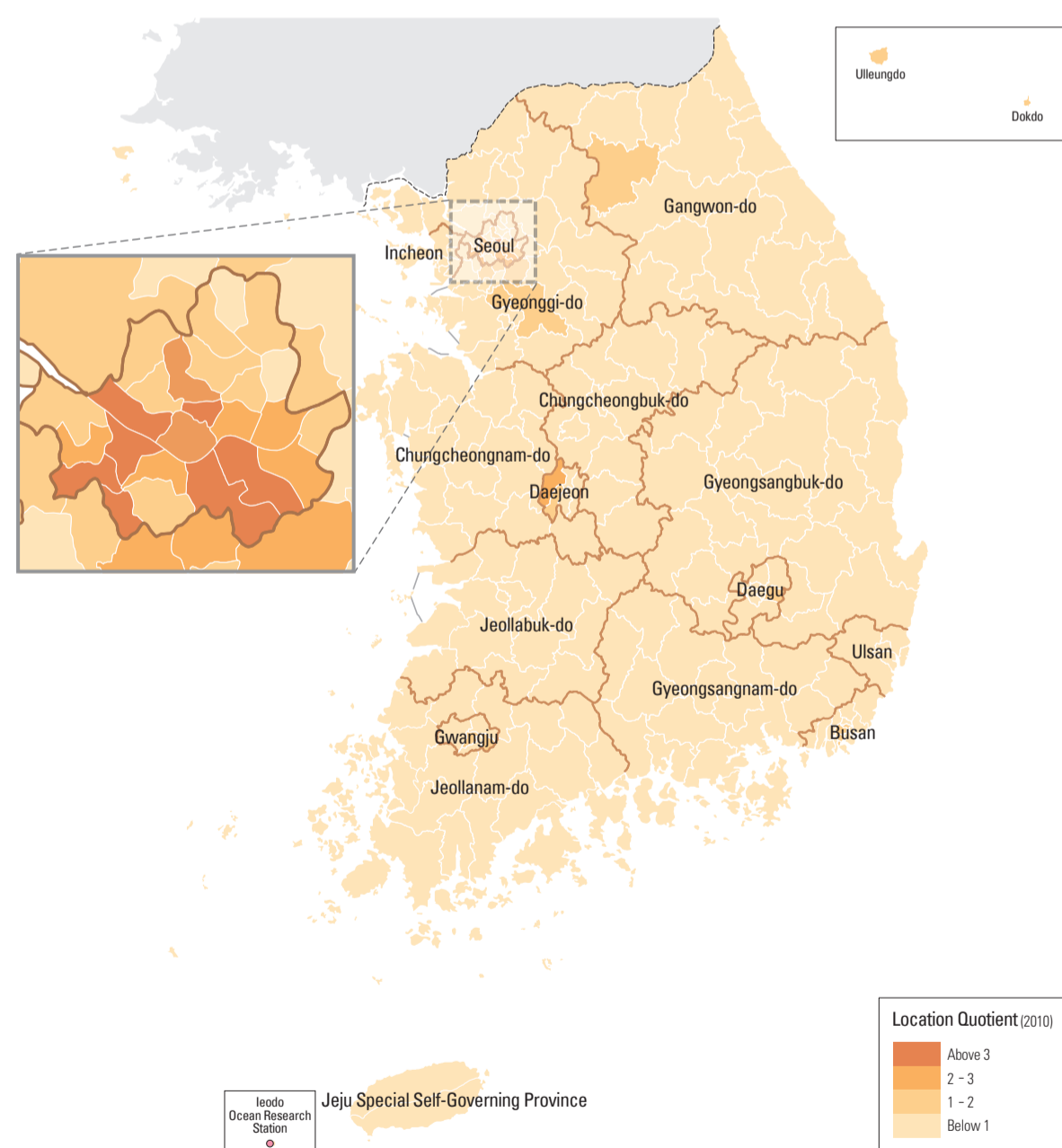
Heavy and Chemical Industries



High-tech Industries



Knowledge Intensive Services



The Location Quotient is an index that indicates how specialized a specific industry is within a certain region; it shows the number of people engaged in a certain industry

within a specific region divided by the number of people in that same industry in the entire country. Generally, when the location quotient is over one, then that specific industry

is specialized within that region. Spatially, industry is developed along the Gyeongbu Axis, and the heavy chemical and high-tech industries are concentrated on the

south side of the greater capital area and the southeastern coastal industrial area. Knowledge-intensive services are concentrated in the Gangnam area of Seoul.

Corporations and Innovation

Large firms in the export industry played a significant role in Korea's economic development. As development progressed, these firms became Korea's chaebols, or conglomerates. Korea's economy is highly dependent on large firms, and they have become increasingly important since 2000. The top 100 companies account for about 50% of the total billing amount of shipment, and the top 50 companies account for 43% of that number. Of the top 1,000 listed companies based on sales volume, 712 are located in Seoul metropolitan area including 529

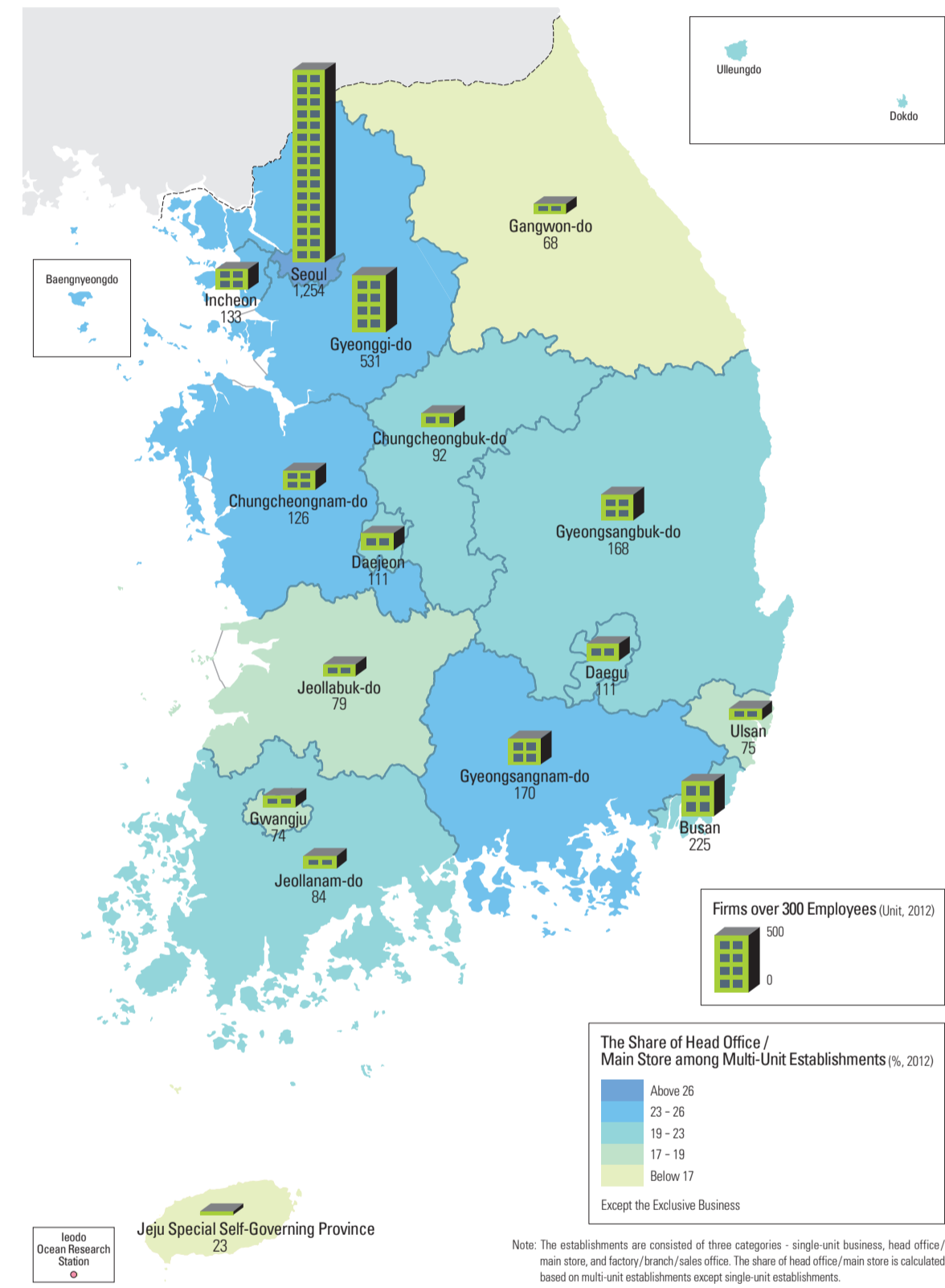
in the city of Seoul and 288 outside of the area. Most large firms have their headquarters in Seoul, and of these over 70% are located in the greater capital area, which indicates that many administrative and control functions are concentrated in the capital area.

Korea's early approach to manufacturing industries focused on component-led light industries until the early 1970s, but after the mid-1970s, it shifted its emphasis toward investment-led heavy chemical industries. After the 1980s, it shifted again toward a focus on innovation-

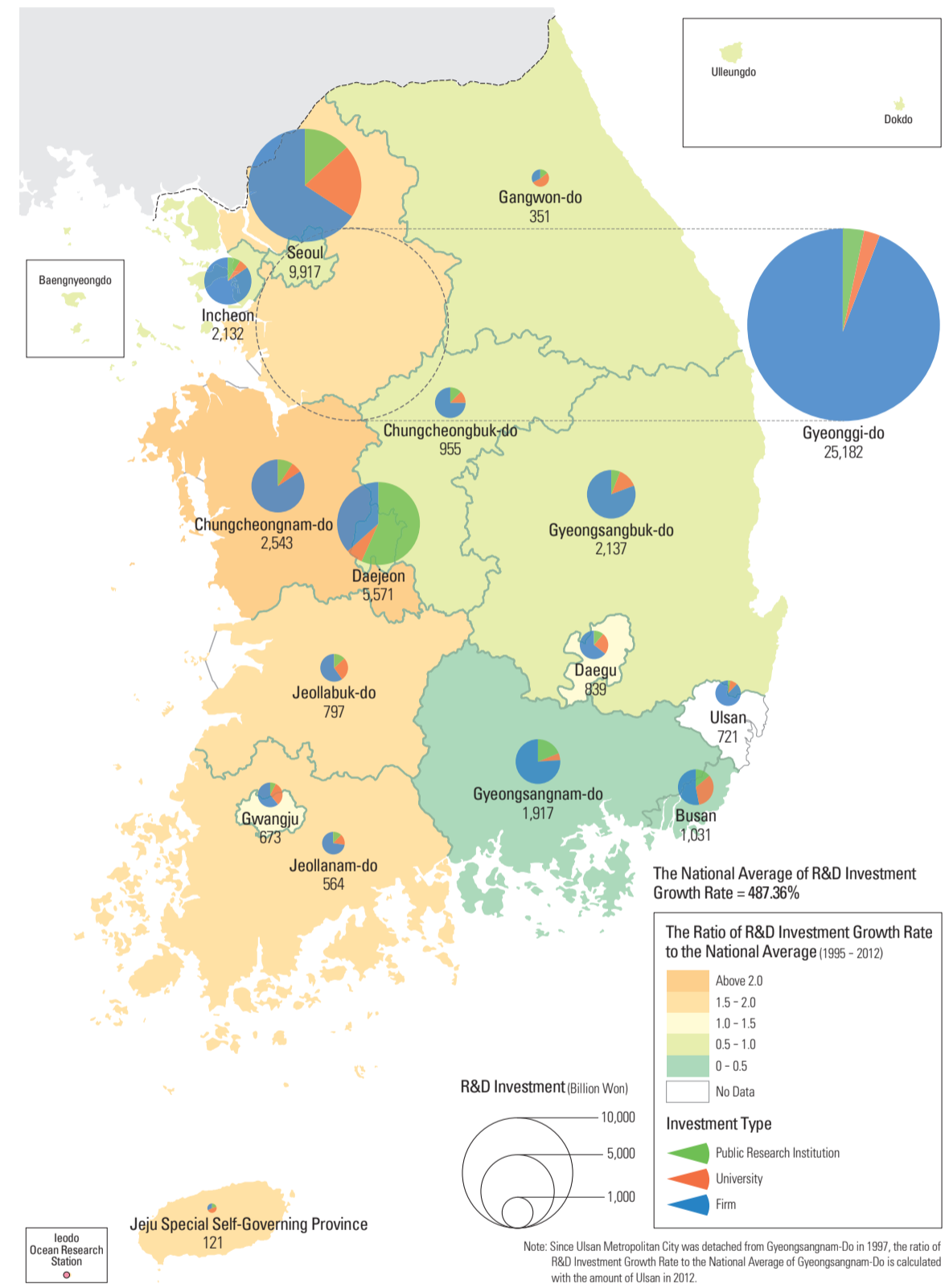
led industry by fostering highly skilled human resources and the development of technology. Research and development investment in Korea has increased from less than 1% of the GDP in the early 1980s to above 4% in 2011. This represents much faster growth in the technology sector than in other countries. The investment bodies of research and development changed as well. By the 1970s public research institutes accounted for more than half of the research and development in Korea, but the share of private sector investments rapidly

increased to make up more than 70% since the 1980s. The regional breakdown of investment in research and development reveals that Gyeonggi-do makes up 45.4% of the total, Seoul receives 17.9% of the funding, and Incheon receives 3.8%, which means that capital area accounts for more than 67% of the spending on research and development. Additionally, a large number of major research institutes are concentrated in Daejeon.

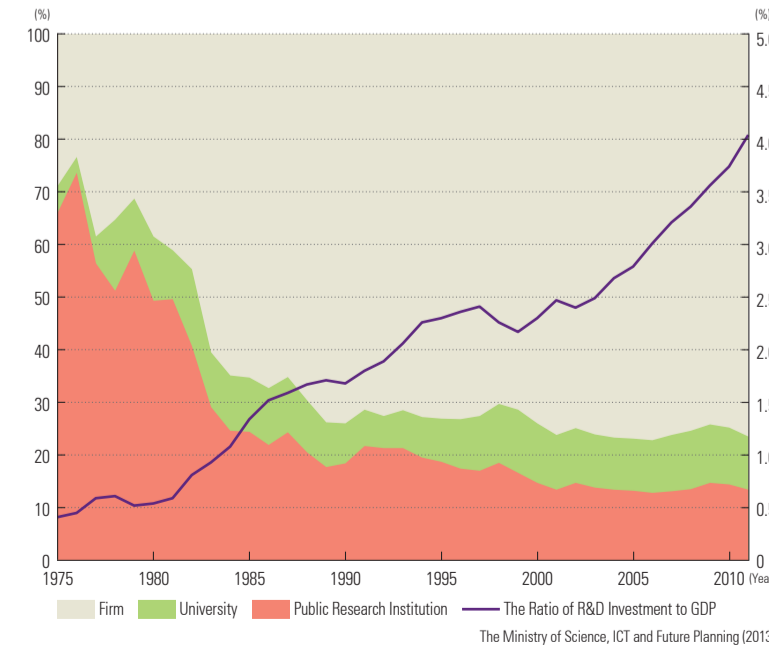
The Distribution of Firms by Business and Scale



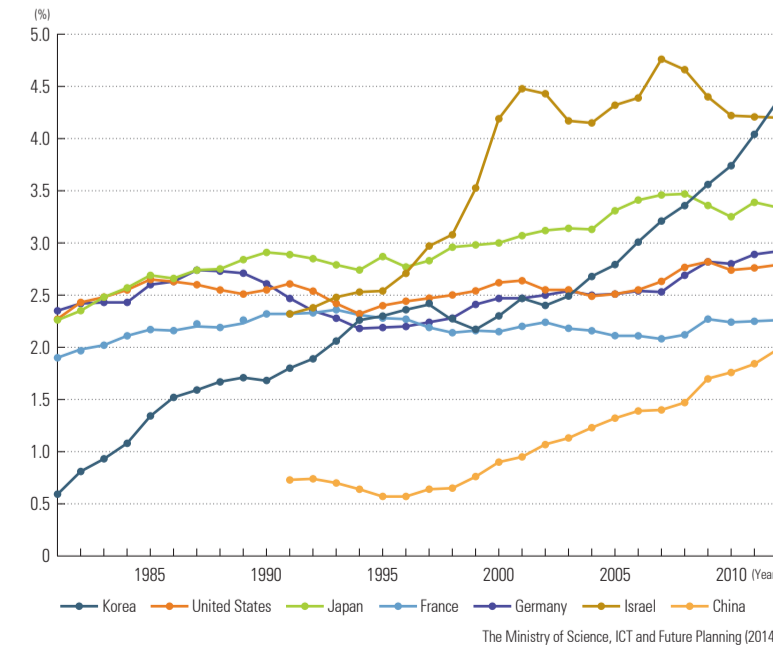
R&D Investment



The Share of R&D Amount by Investor



The R&D Investment Rate in the World

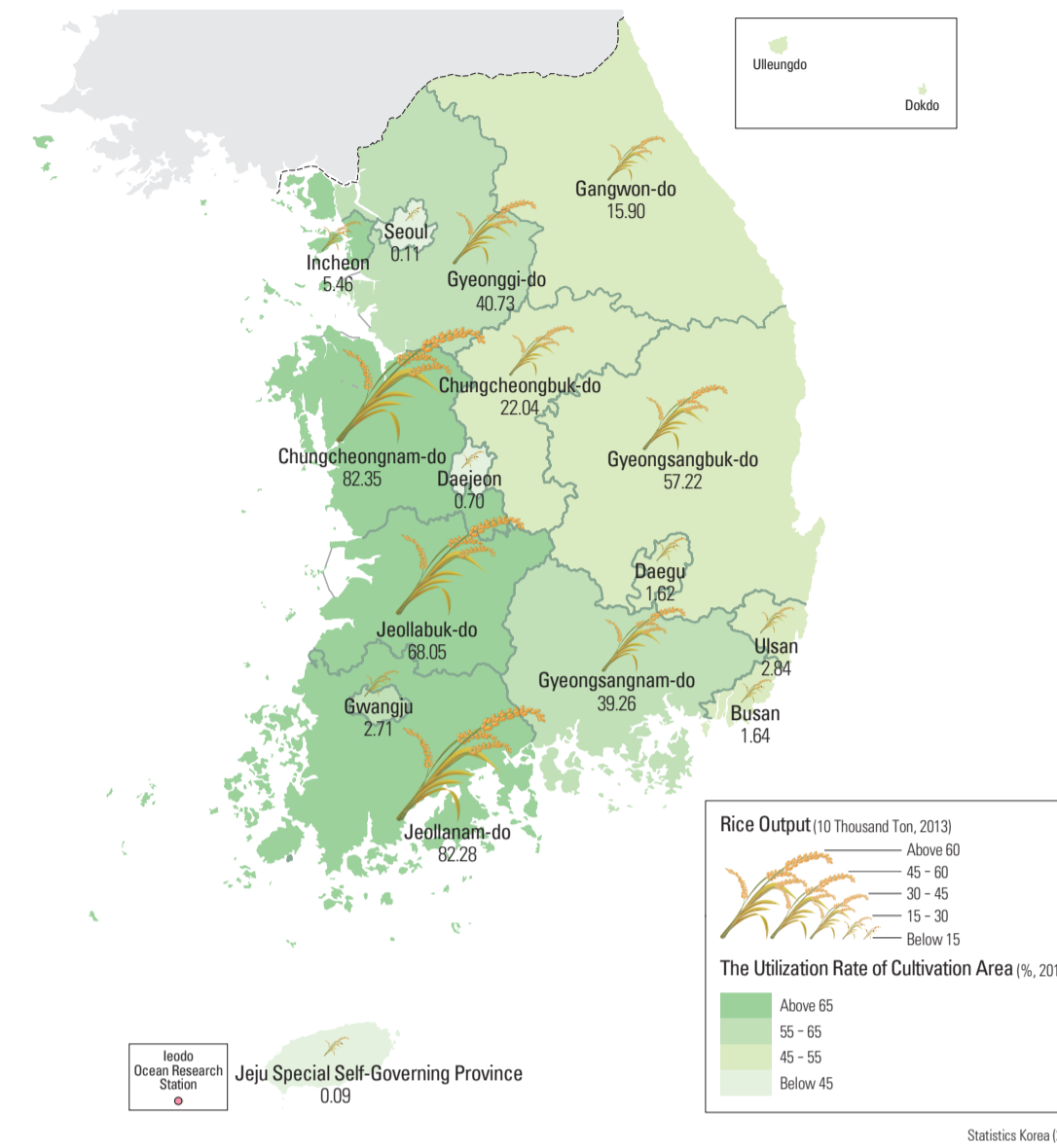


The Share of Top 100 Firms



Resources and Energy

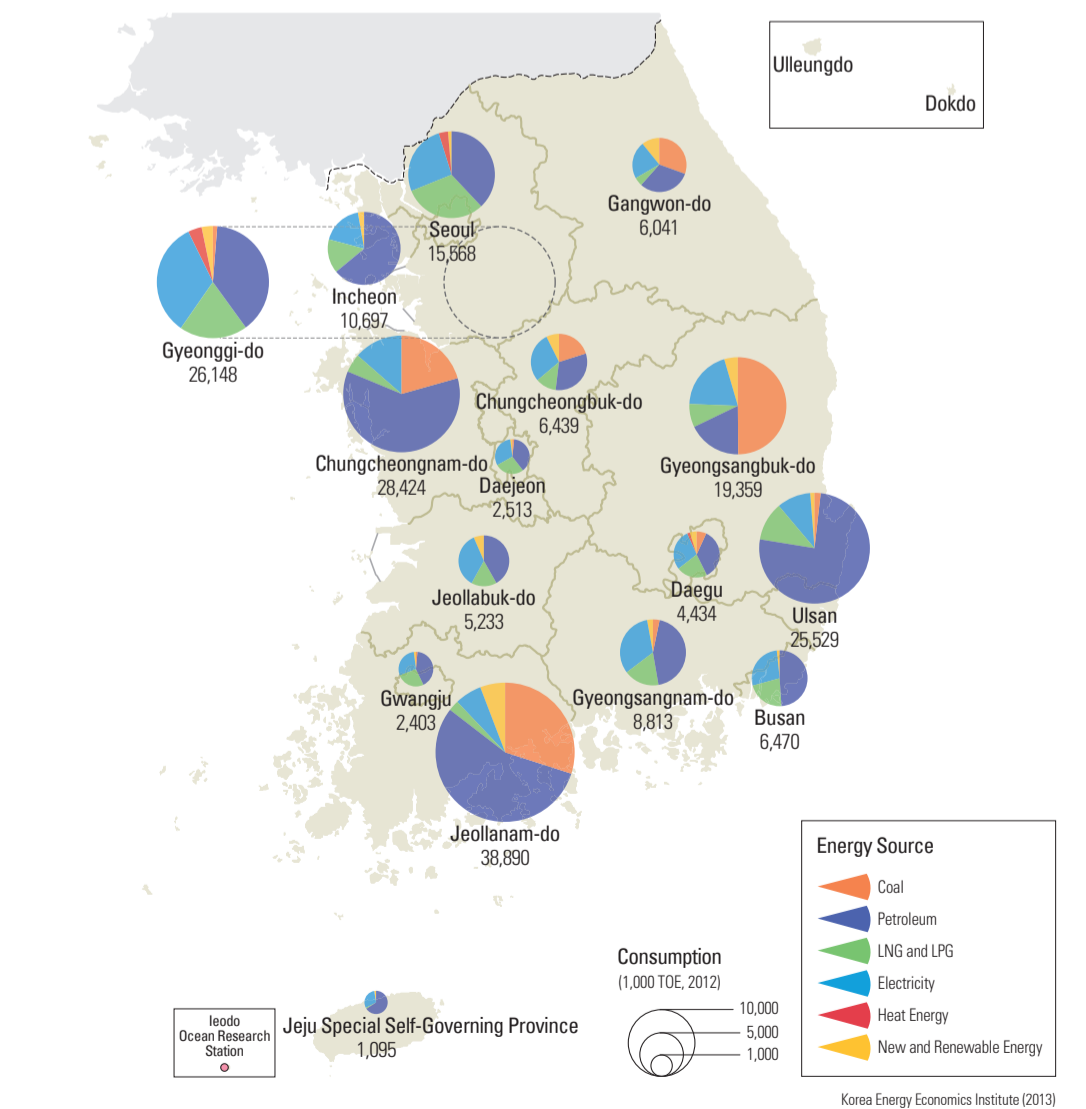
Agricultural Production



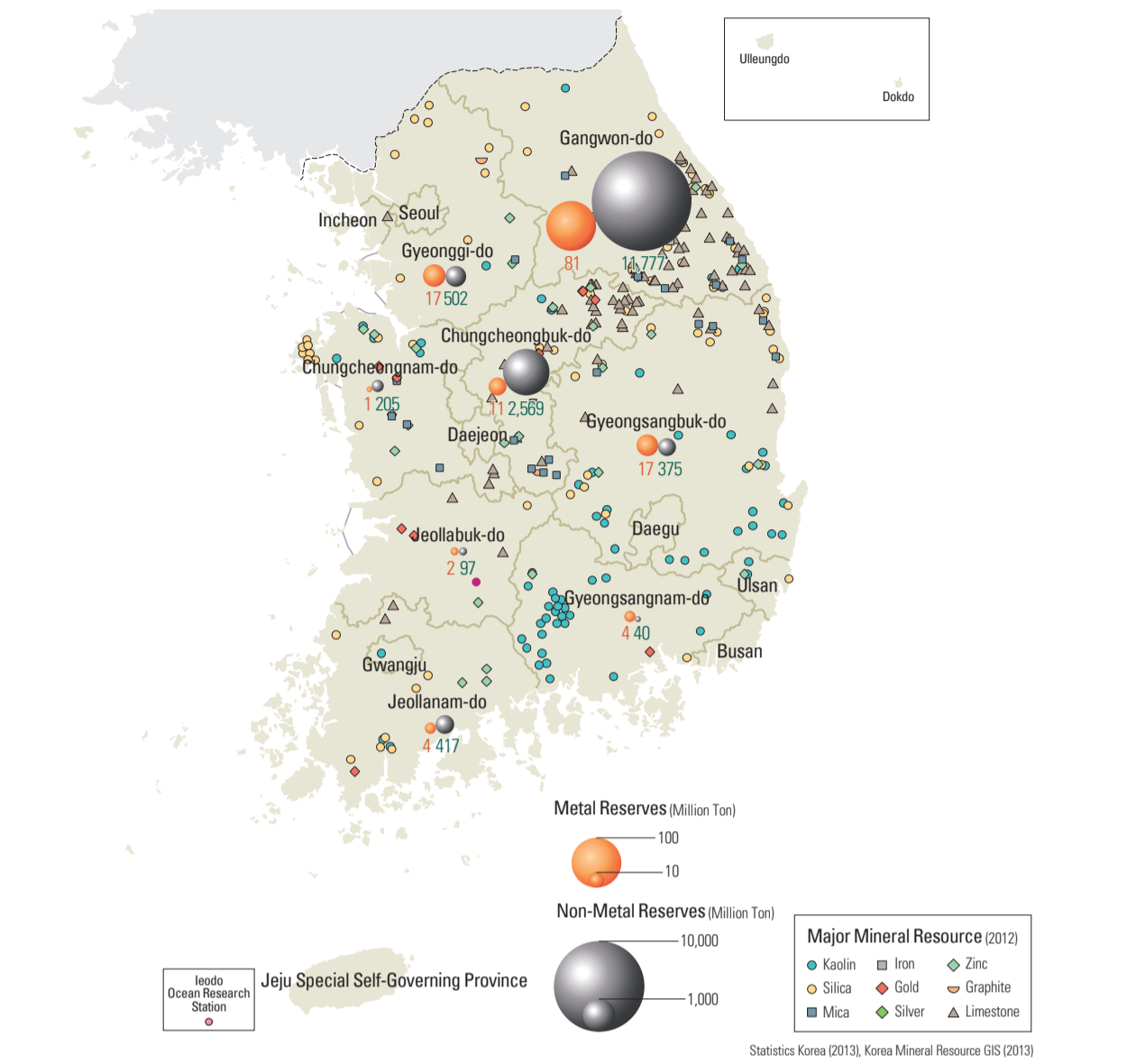
Korea's agricultural production can be reviewed by examining the gross agricultural output. The ratio of crops to livestock was 9:1 in the early 1950s, but the share of livestock increased to 7.3 by 2010. Rice represented more than 50% of the shares of agricultural products in 1950s, but its share gradually decreased to less than 30% by 2010. On the other hand, the share of vegetables and fruits continues to grow. Rice production still affects the overall agricultural industry significantly; its production is high in Jeollabuk-do, Jeollanam-do, and Chungcheongnam-do. The total area of the landmass in cultivation continues

to shrink and this decline is common to all crops. There are about 300 minerals found in Korea and about 140 of these are of commercial value. Currently, only 20 minerals are mined, and only a few of these minerals are abundant. Out of metal minerals iron, manganese, tungsten, molybdenum, and zinc can be found in the Taebaeksan mineral zone (Sancheok-si, Taebaek-si, and Yangyang-gun of Gangwon-do) and copper is also present in the Taebaeksan mineral zone and in Gyeongsangbuk-do and Gyeongsangnam-do. Gold and silver can be found nationwide; however, the reserve is small.

Final Energy Consumption by Source



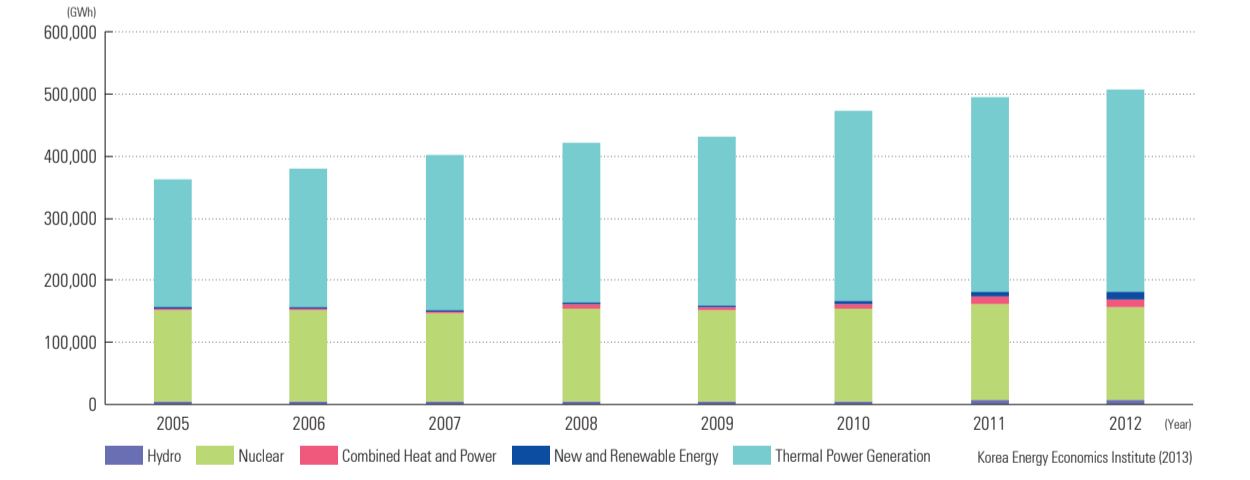
Mineral Resources



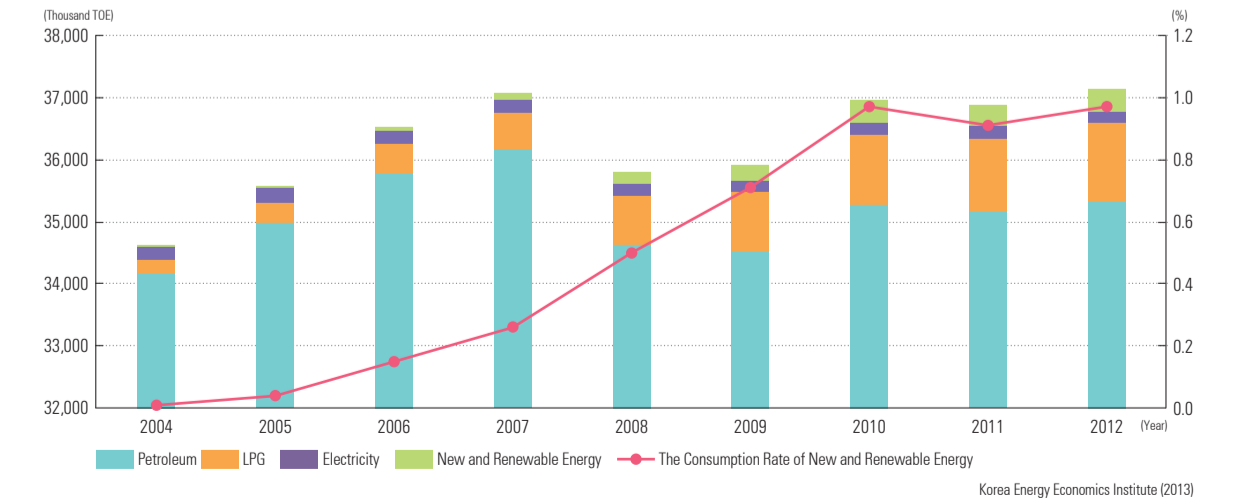
Limestone is mined in Gangwon-do, Chungcheongbuk-do, Gyeongsangbuk-do, and Jeollanam-do, and the extracted amount has increased and parallels the growth of the cement industry. Limestone and silica exist in abundance in Korea such that the domestic demands can be met. Anthracite, also called hard coal, is found in Gangwon-do, Chungcheongbuk-do, Chungcheongnam-do, Jeollabuk-do, Jeollanam-do, and Gyeonggi-do, but more than half the national reserve is in Tanjeon, near Taebaeksanmaek. Energy resources used in daily life include petroleum,

coal, and gas (non-renewable energy) as well as renewable energy such as solar, water, and wind power. Coal and hydroelectric power are generated domestically, but only in small amounts. More than 95% of the nation's energy is imported. Out of the nation's entire import volume, energy makes up about a quarter, and petroleum accounts for a large share of imported energy. At the present the most heavily consumed forms of energy are petroleum, coal, nuclear energy, and natural gas in that order.

Electricity Generation by Source



Energy Consumption in Transportation



The Transformation of Economic Activities

National economic activities can be reviewed through the characteristics of employment and consumption. First, employment can be reviewed by examining the employment rate, the unemployment rate, and the employment structure. Labor force participation rate is the share of the economically active population (both employed and unemployed) as a percentage of the population group older than 15 years of age. It is the most typical indicator to evaluate a nation's active economic activity. The employment rate is the share of the employed as a percentage of the entire population group older than 15 years of age, and the unemployment rate indicates the share of the unemployed as a percentage of the economically active population. The unemployment rate does not include those who gave up

on employment after trying to get a job for a long time; thus, it can be underestimated. In this context, the OECD recommends that the unemployment rate be used along with the employment rate for evaluating the economy. The employment rate is lower in metropolitan areas even though there are a lot of jobs, but this is due to the high urban population that skews the statistic. On the other hand, the unemployment rate is high in urban areas due to the high number of job seekers compared to the size of the urban population. In non-urban areas, even though the share of the non-economically active population is high, unemployed adults are either not interested in working or are not active job seekers; thus, they are not counted in the statistics.

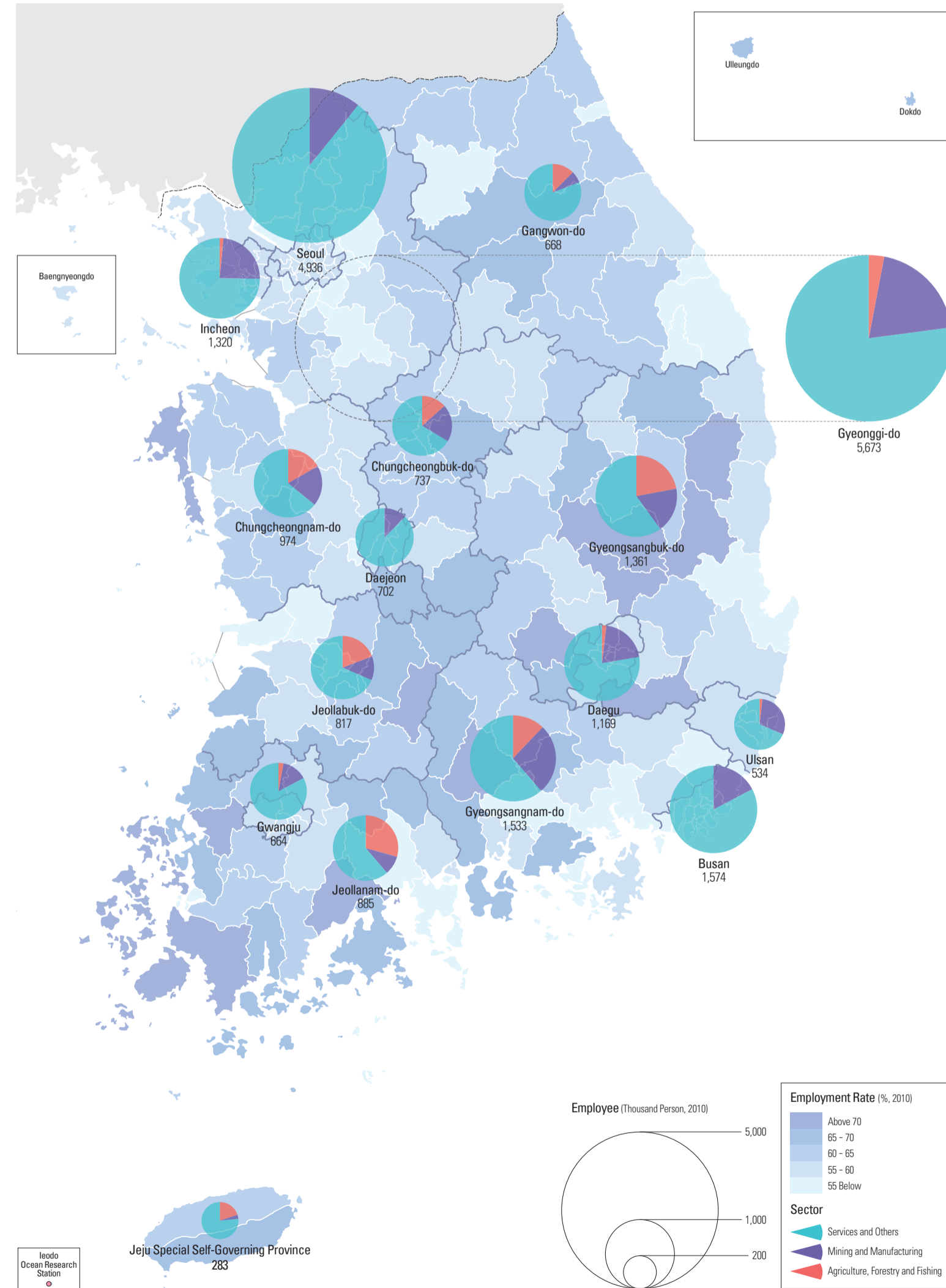
The Consumer Price Index, which is one of several

consumption indicators, measures the average price fluctuation of products and services purchased by households to meet daily needs. It is calculated by comparing a standard base point that is based on prices in the year 2010 as a quotient of 100. In other words, it provides the average measurement of inflation of overall household consumption as one of the macroeconomic indices. For instance, if the Consumer Price Index in 2010 was 100, it would have been 11.0 in 1975, 34.2 in 1985, 60.2 in 1995, and 86.1 in 2005 taking inflation into account through the years.

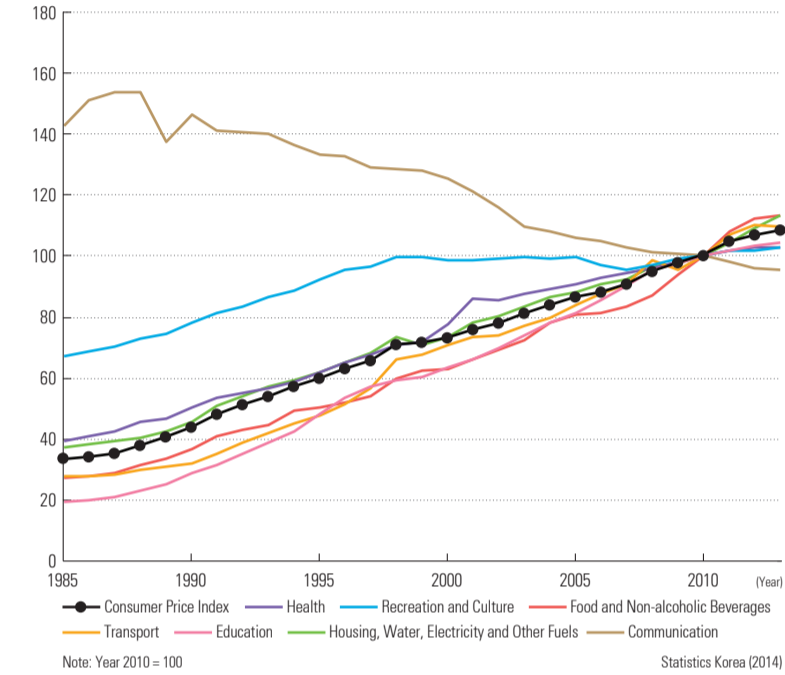
There were a number of crises during Korea's transformation into an economically stable world power, and they deeply affected national economic activities. The two oil crises in the early and late 1970s, the decrease

in competitiveness due to labor disputes and wage increases in the late 1980s, the Asian foreign exchange crisis in late 1990s, and the global financial crisis of the late 2000s all had profound effects on Korea's economy. During the 1997 Asian foreign exchange crisis, Korea's economic growth rate, the GDP, import/export ratios, the foreign reserve and other economic indicators were particularly damaged while the exchange rate and interest rates soared. This led to a lower employment rate, higher unemployment rate, which cast a shadow over the national economy. Fortunately, due to intensive restructuring in both private and public sectors, the economy recovered relatively quickly and it has started to show growth once again.

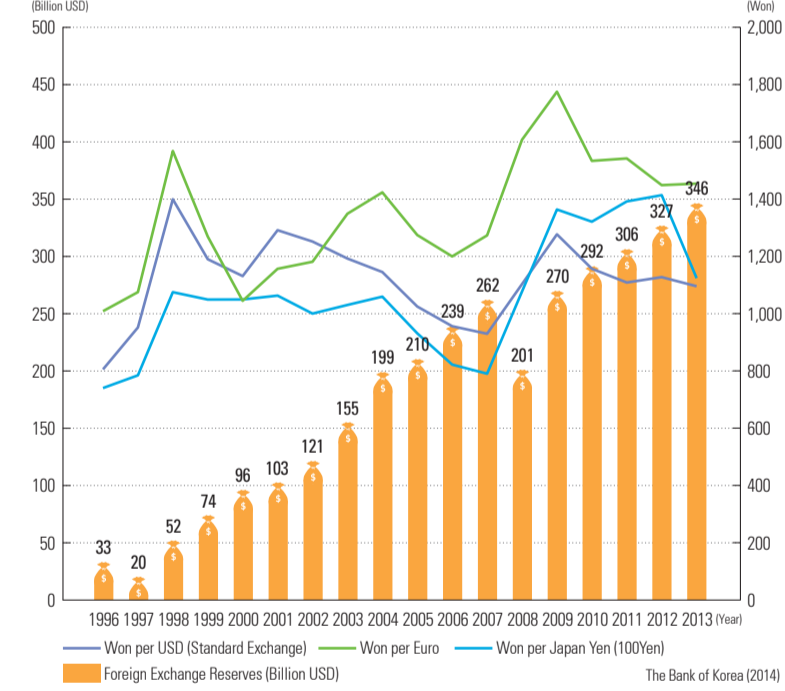
The Share of Employees by Industry and the Employment Rate



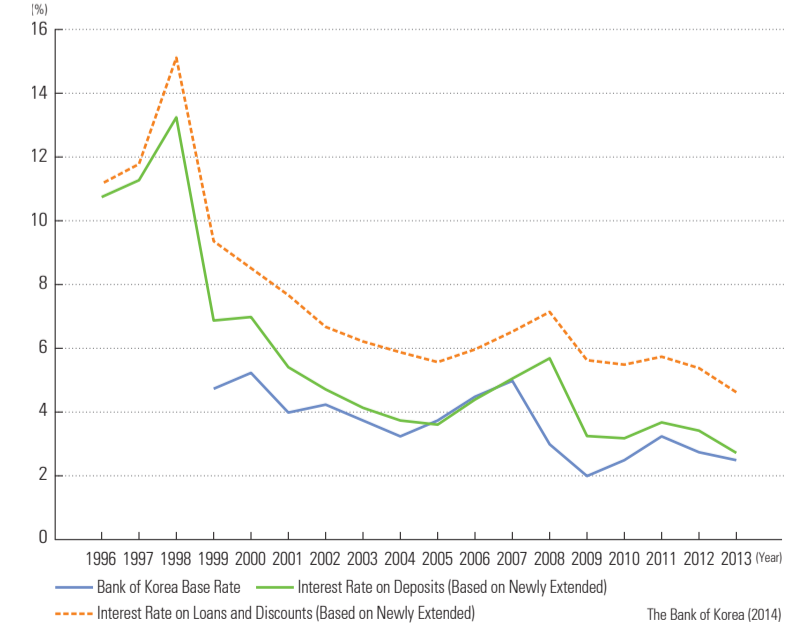
The Change of Consumer Price Index



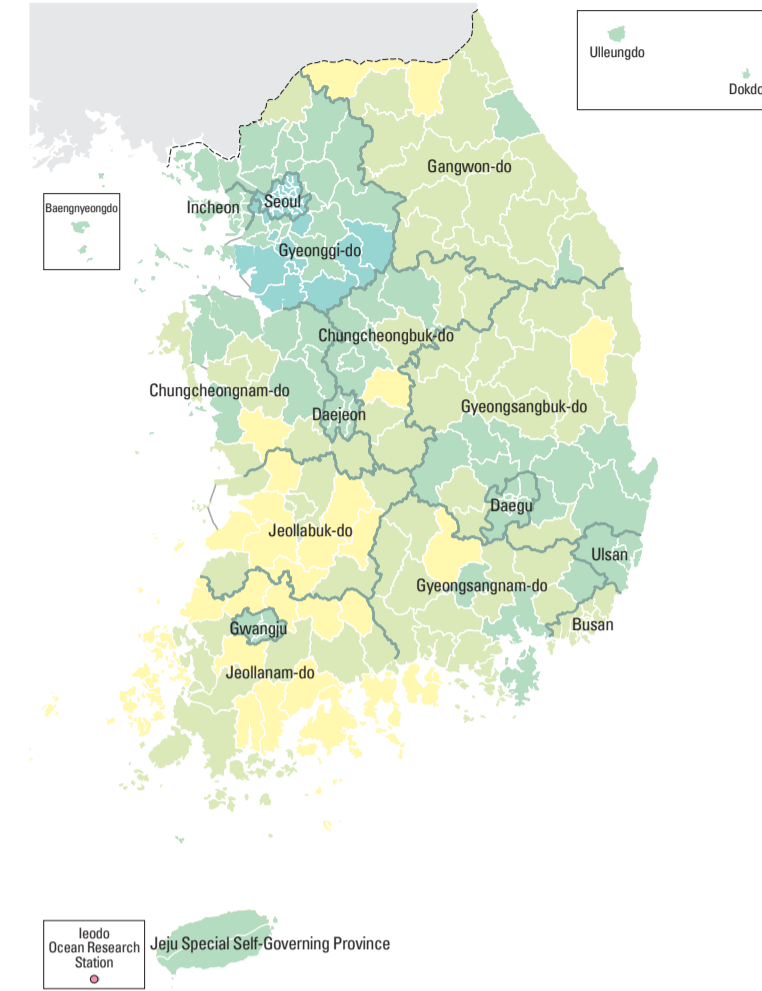
Foreign Exchange Rate and Reserves



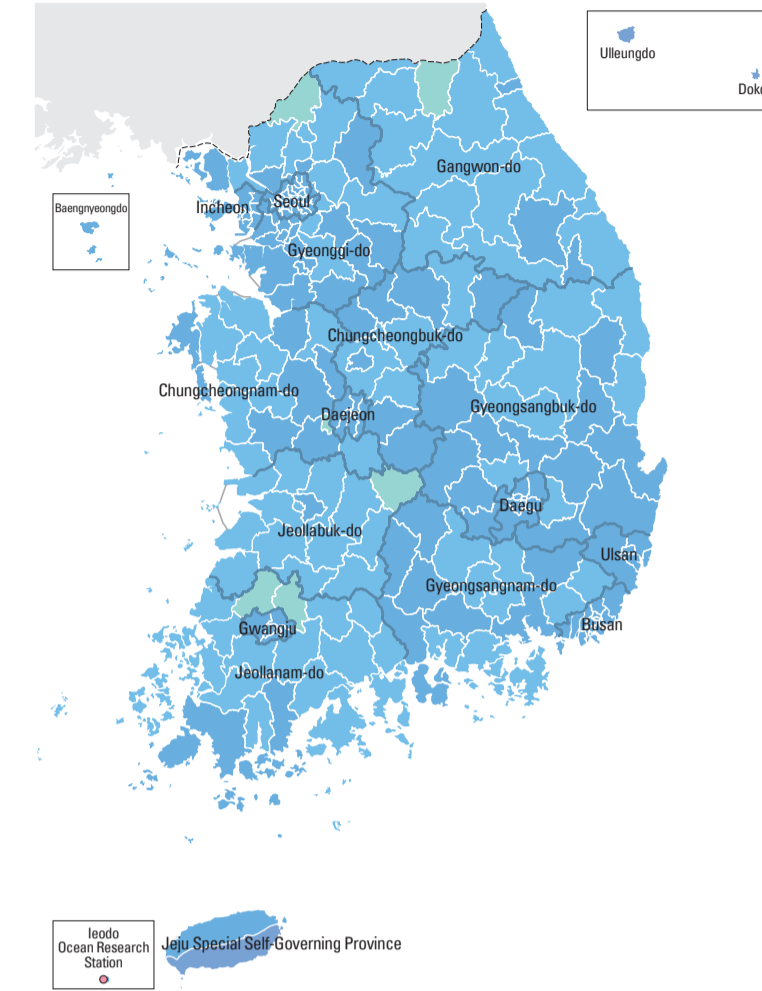
The Change of Interest Rates



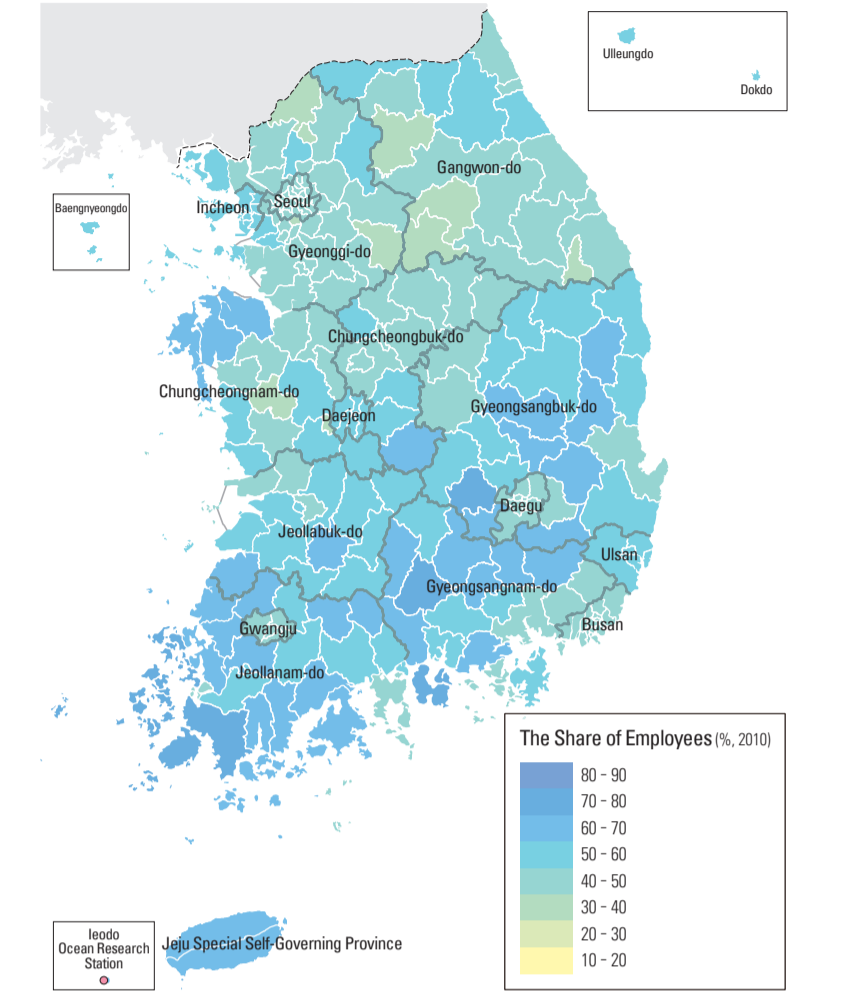
The Share of Employees of 15~29 Years Old



The Share of Employees of 30~49 Years Old



The Share of Employees of over 50 Years Old



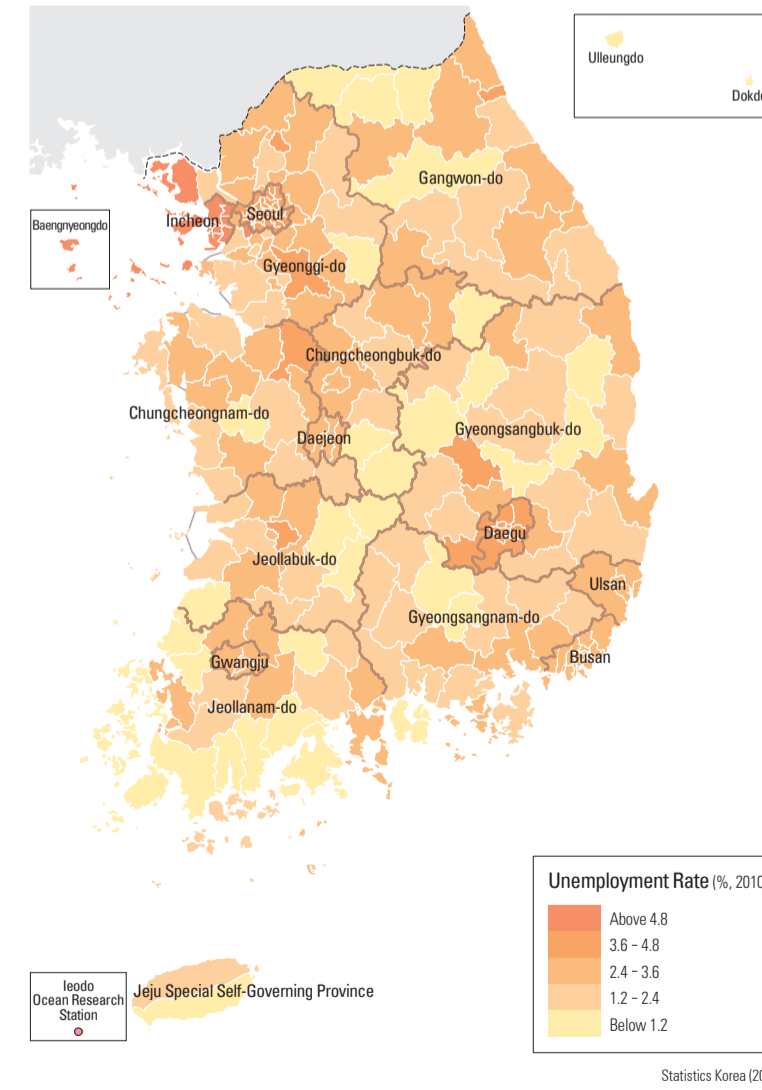
The Korean labor market has undergone significant changes in the last six decades. In the 1960s, a non-skilled labor force was abundant, and it led to the development of labor-intensive industries. The unemployment rate decreased and employment increased. After the 1970s, as heavy chemical industries were developed there was an increased demand for skilled labor. And after the late 1980s, with the subsequent shift toward high value-added industries, such as information and communication, the demand for skilled labor has continued to increase. In addition, the wage gap increased in direct relation to educational accomplishments, work experience, and professional competence.

The change in the employment rate demonstrates a progression from the lower 50% range in the early 1960s to nearly 60% in 2013. The male employment rate remained steady in the 70-75% range, but the female employment rate increased from the mid-30% range to nearly 50% more recently, indicating more participation from the female work force. The female work force made significant contributions in the 1960s and 1970s with the development of labor-intensive industries. As the number of female high school and university graduates increased, women's economic participation rate continued to grow. Today, the percentage of women participating in the national workforce is still lower than in other

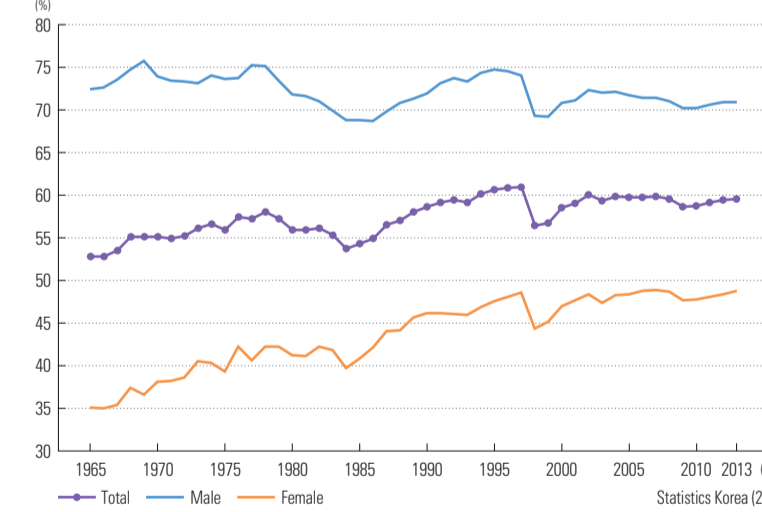
OECD countries, which indicates there is a need to implement new policies that would facilitate more female participation in the labor force such as increasing access to childcare facilities, and reducing in average weekly work hours. Korea's population is rapidly aging, a shift which is causing serious social issues such as a breakdown in securing support for the elderly and age-based income inequity. The number of young job seekers who are not reflected in unemployment rate statistics is also on the rise. The population of the elderly who are not supported by their children is also increasing, making elder employment issues more serious. The monthly salary of

workers over 60 years old was higher than average until the early 1990. However, this has changed since 2000, and now male workers over the age of 60 make only 80% of the average salary of their male peers under the age of 60. For their female counterparts in the same age group, women's salaries are on a downward trend from the mid-50% range. The share of university graduates is higher in metropolitan areas than in other regions, and with the overall education level in the nation rising, more focus is now being given to those unemployed citizens who have higher education training.

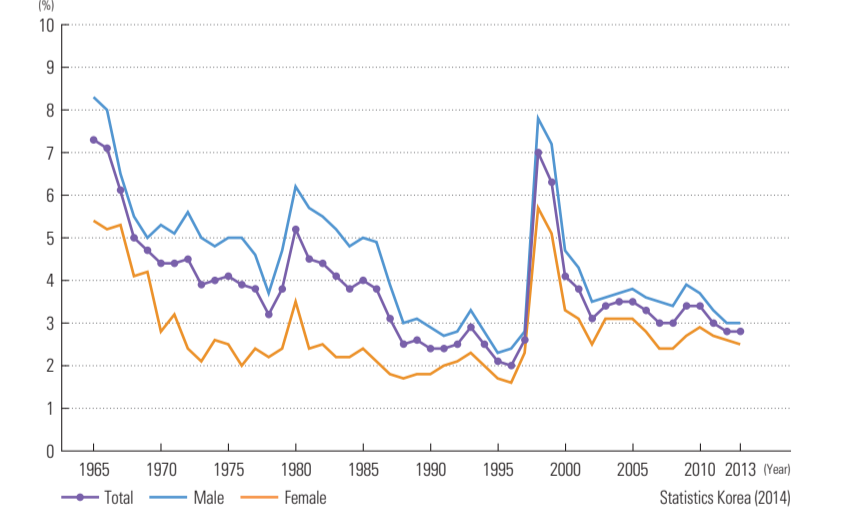
Unemployment Rate



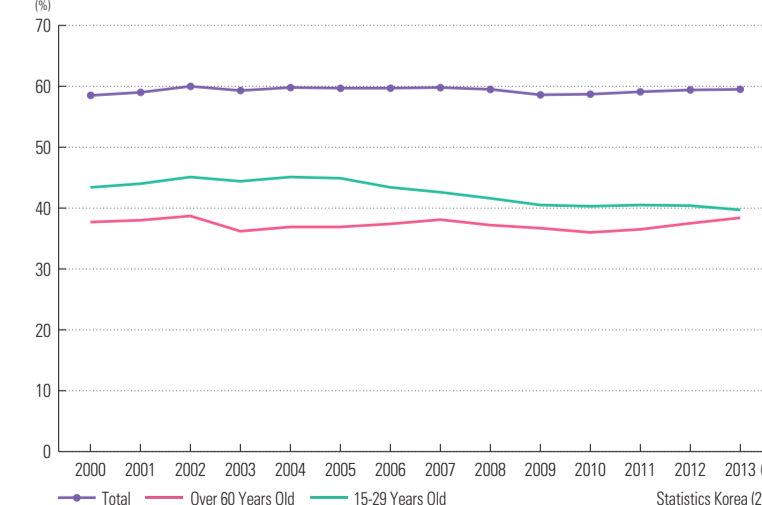
The Change of Employment Rate by Gender



The Change of Unemployment Rate by Gender



The Change of Employment Rate by Age



The Change of Unemployment Rate by Age

