Human Activities

Transformation of the Nation

The year 1953 was the aftermath of decades of Japanese occupation (1910–1945) and fighting the Korean War (1950-1953). South Korea was a war-torn nation with poverty, land devastation, and destroyed infrastructure. With the lack of natural resources and little national capital, rebuilding a nation was a daunting task. Until the early 1960s, Korea was forced to focus on recovering from the devastation of war by utilizing international aid to restore public facilities and rebuild the national economy.

The governmental master plan for land development was put into action in the early 1960s. Many parts of the plan were based on principles and theories of human geography and the practice of cartographic analysis. At that time, the government based the plan on the growth pole theory, concentrating in a small number of places with the highest promise of success. This approach was aimed at maximizing the development effect in the shortest of time. However, the growth pole theory resulted in the imbalanced flow of people and capital to only a few development centers. Under the Special Area Development Project, Seoul, Incheon, and Ulsan were selected as growth poles or Special Areas to be developed first on the premise that the effects of such development would gradually enfold the surrounding areas. The Industrial Park Development Project began in Ulsan and Seoul in the early 1960s. Also, during the 1960s and 1970s, the Industrial City Construction Project was launched with targeted sites near such industrial parks. This led to the emergence of major chemical industries concentrated in Ulsan, Yeocheon, Pohang, and Gumi with a concordant rise in population in each of these cities.

Urban migration, families moving to live in the city, increase in national income, and more widespread expectations for a higher quality of life led to soaring demands for housing in the 1980s and 1990s. The housing supply rose to keep pace with the demand. In 1950, the number of housing units was 3,280,000; by 2011 it had increased five-and-a-half times to 18,130,000. The increase was a result of many government housing-related development policies.

As economic development gained momentum in the 1960s, the transportation infrastructure was rapidly built to support the transformation of the nation. The most notable project was the 428 kilometer (260 miles) Gyeongbu Expressway which connects Seoul with Busan. Construction began in 1968, and the expressway opened for service in 1970. It serves as the main corridor through the country. Since the late 1980s more and more roads have been built and improved as the number of cars has soared and the volume of road traffic has increased. The modernization of rail traffic has been ongoing. In 2004, the Seoul-Busan High Speed Railway began operation with a bullet train capable of traveling at 180 miles per hour. The majority of marine transportation is used for overseas transportation rather than domestic purposes. Major port facilities of Korea are primarily located along the southeastern coast, which facilitates the import and export of materials and products needed for chemical industrial plants located in the same region. In 2006, the Busan New Port began operation and has become the center for international marine transportation.

A bullet train arriving Busan Station from Seoul

Air traffic development began with the construction of airfields built for military purposes during Japanese colonization. Gimpo Airport opened in 1958 and Jeju Airport began operations in 1968. Air transportation in Korea has opened a new chapter with the opening of the ultra-modern Incheon International Airport on Yeongjong Island in 2001.

Other major development projects from the 1970s to the present include a number of natural resource and energy related projects such as reforestation, land reclamation, multipurpose dam construction, and nuclear power plant construction.

Urbanization has had major impacts on Korean demographics, the physical landscape, social behavioral institutions, as well as the economy. Both the number and sizes of cities increased, as the population of rural areas declined, which also led to a decrease in the percentage of the population that was engaged in agriculture, fishing and fishing-related activities.

The emergence of metropolitan centers is a major feature of development in Korea and resulted primarily from the rural-to-urban migrations, especially in the capital area. More jobs were created prompting further mass migrations from rural to urban areas. The urbanization rate, which indicates the ratio of urban population as a percentage of the total population, increased rapidly in Korea until the 1980s, but the pace has slowed since then. Rural areas suffered from the lack of a labor force, a decrease in the efficiency of land utilization, and the rapid aging of the population. In many instances, these factors ultimately contributed to the failure to meet the minimum requirements for sustaining a rural community. At the same time urban areas were confronted with the need to mitigate the challenges of overcrowding. Additionally, the heavy concentration of industrial activity within the metropolitan areas resulted in serious social and environmental issues such as housing shortages, traffic congestion, poor air quality, and overall environmental degradation.

Since the 1960s, by building industrial complexes and new cities, the South Korean government has fostered economic growth through export. Beginning with the Ulsan Industrial Complex, which was completed in 1962, and the Korea Export Industrial Complex (Guro Industrial Complex) in 1964, many industrial complexes and adjacent cities emerged in and around Yeocheon, Pohang, Gumi, Incheon, Changwon, Banwol (Ansan), and elsewhere from the late 1960s through the 1970s.

The importance of water as a resource was recognized in the 1960s; thus, the multi-purpose Seomjingang Dam was built in 1965 across the Seomjin River. More multi-purpose dams were built through 1980s; the Soyanggang Dam, Daecheong Dam, and Chungju Dam are notable examples. These all possess hydroelectric power generation capabilities. In 1978, the first nuclear power plant, the Gori Nuclear Power Plant No. 1 was built and began operating near Busan. Subsequently, more nuclear power plants were built in Wolseong, Uljin, and Yeonggwang.

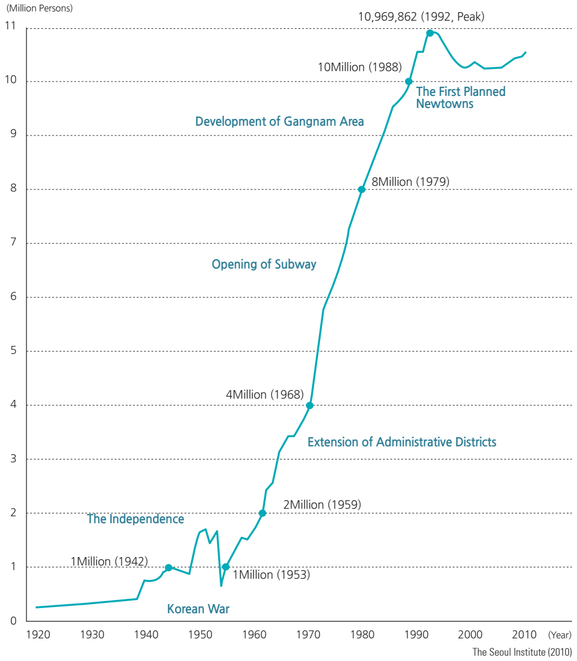
For the last 60 years, there have been many changes in the Korean landscape, most of which have stemmed from government-led land development projects, urbanization, industrialization, and the building of important infrastructure that stimulate growth. The progress since the Korean War is nothing short of an impressive and rapid transformation of the nation.

Brief Interpretation of the Map

The map briefly highlights the locations of major developments in industrial complexes, transportation networks, major dams, land reclamation, and growth of metropolitan areas. Two geographic patterns stand out: the reclamation areas are all on the west coast and the newest dams and industrial developments are mostly in the south. The more rugged east coast and the short rivers that flow to the east do not generate any delta areas that are suitable for reclamation. The locations of newer dams and industrial developments in the south were planned to avoid potential conflict from the North; in addition, these industrial developments pertain to the shipping and export industries that need port facilities along the coast. Transportation networks are well developed except for the northern and eastern parts of the country.

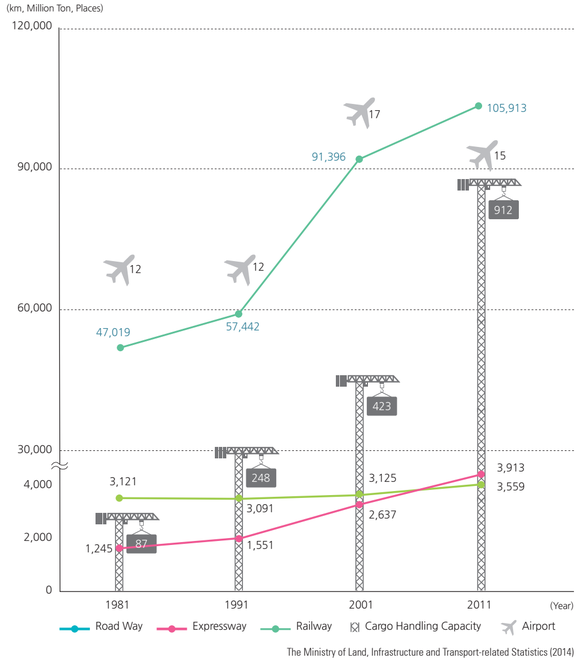
Examine the lack of any development in the north and east and compare this area with the satellite image on page 23. Suggest reasons why these areas are not developed. What kind of geographic factors make them not suitable for industrial development? Think of any kind of economic developments that are suitable. (Hint: how can the beauty of the land create financial and environmental benefits?)

The Growth of Seoul



The Seoul Institute (2010)

The Development of Transportation Infrastructure



The Ministry of Land, Infrastructure and Transport-related Statistics (2014)

Major Land Development Projects

Korean Statistical Information Service (2013), The Ministry of Land, Infrastructure and Transport-related statistics (2013), Korea Transport Database (2013)

Government of The Republic of Korea

The National Assembly

Transforming a nation also means making improvements in the structure of the government. Although the Republic of Korea has gone through six different republics in the national transformation since the Korean War, it has now been stabilized. Korea held the first free election in 1987. The sixth (and current) republic is a democracy that has universal suffrage at age 19. Similar to the United States, the government is divided into three branches: the National Assembly (legislative branch), the Executive Branch, and the Judicial Branch.

The National Assembly is the legislative body of the Republic of Korea composed of members who are elected by the people to whom sovereignty belongs and, on their behalf, enact laws which are the foundation of state operation. They also deliberate and finalize the budget, and make important policy decisions.

The National Assembly has the legislative power to propose and pass constitutional amendments and to enact and revise laws. It deliberates and decides upon budget proposals and settlement of accounts submitted by the government, controls state affairs by auditing the overall administration of the state and inspecting specific issues. Furthermore, it has the right to approve the President's appointment of key public officials, such as Chief Justice of the Supreme Court, President of the Constitutional Court, Prime Minister, and Chairman of the Board of Audit and Inspection, and the right of consent to the conclusion and ratification of major international treaties on behalf of the people. Additionally, the National Assembly actively engages in parliamentary diplomacy which helps elevate national interests as well as the international profile of South Korea.

The statutory members of the National Assembly total 300, among whom 246 members are elected from single-member constituencies. The remaining 54 gain office through a proportional representation system, which elects the members based on the proportion of votes per political party. The term of National Assembly members is four years. The cycle of the 19th National Assembly ran from May 30, 2012 to May 29, 2016.

The National Assembly has one Speaker and two Deputy Speakers. They are elected at the plenary session through secret voting and each serves a two year term. As the leader of the legislative body, the Speaker represents the National Assembly, presides over the plenary sessions and oversees the administration of the National Assembly. To maintain impartiality in proceedings, the Speaker is not allowed to affiliate with any political party during his or her term of office. In case the Speaker is unable to carry out the required duties within his or her term, a Deputy Speaker is charged with the duty to act in place of the Speaker.

The National Assembly holds regular and extraordinary sessions. The regular session convenes on the first day of September every year and may not exceed one hundred days. Extraordinary sessions convene on the first day of February, April and June (even-numbered months with the exception of August, October and December) every year and may not exceed thirty days.

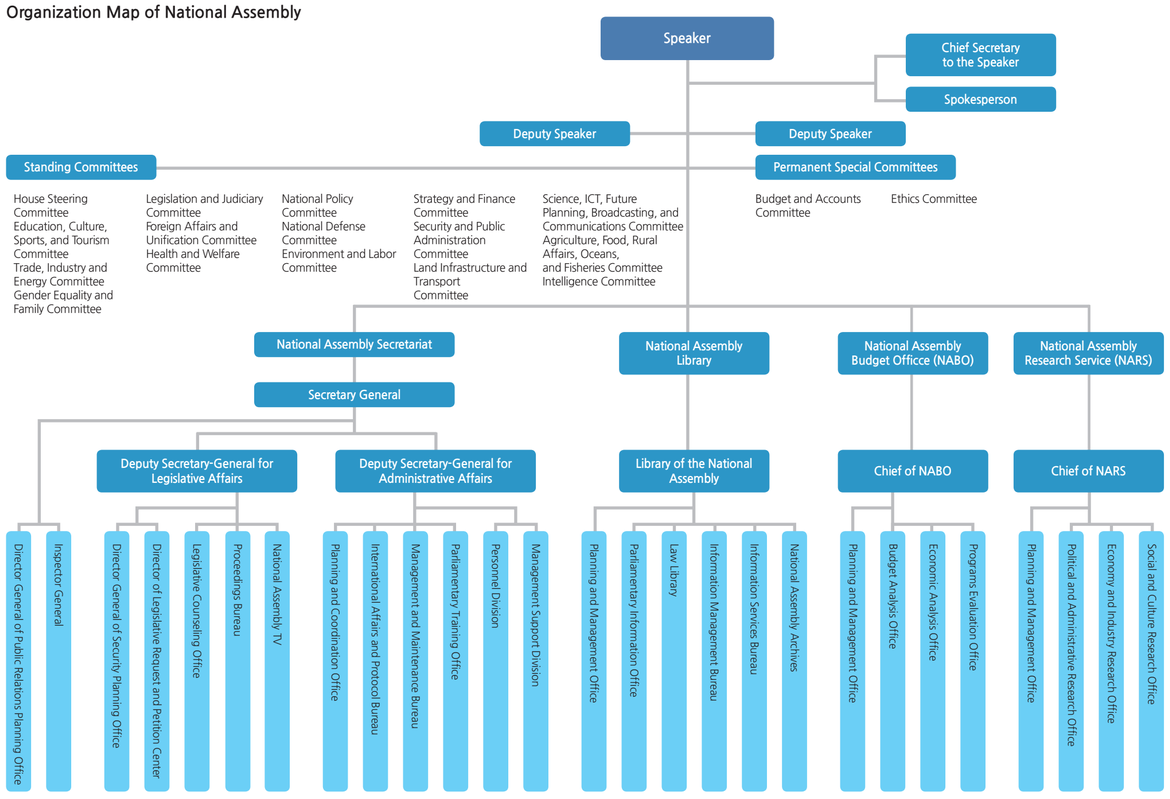
The National Assembly Secretariat, National Assembly Library, National Assembly Budget Office (NABO), National Assembly Research Service (NARS) and support staff for representatives are components of the legislative support organizations that professionally and effectively support the authority and function of the National Assembly. The function of the Secretariat is to support overall parliamentary activities of lawmakers and take care of the administrative work of the National Assembly. These activities include: supporting the smooth running of meetings; assisting the deliberation on legislative bills, budget and settlement of accounts; the inspection and investigation of state administration; providing support for parliamentary diplomacy; handling civil complaints; and promoting National Assembly Broadcasting Station (NATV) services and the National Assembly as a whole. The Secretariat supports major legislative and parliamentary activities.

The National Assembly Library was established to facilitate legislative activities of lawmakers by collecting, managing and providing necessary information regarding various pending issues and legislation. It is open to the general public even at nighttime and on Sundays with an access to the materials collected.

The National Assembly Budget Office (NABO) is a legislative support body specializing in financial matters. It was established to promote parliamentary financial activities including assistance in deliberating on the budget and settlement of accounts, based on professional and impartial research and analyses.

The National Assembly Research Service (NARS) is an independent legislative and policy research institute established within the National Assembly to strengthen capacity in legislation and policy development. It conducts studies, research and analyses on legislative and policy issues in an impartial and professional manner. NARS also collects, manages and distributes related materials, and undertakes studies and analyses on legislative trends and cases at home and abroad in the respective fields to provide to Assembly Members and Committees. Each member of the Assembly is entitled to have seven advisors to facilitate their parliamentary activities. The scope of work ranges from support for legislative activities in terms of policy formulation to political affairs concerning communication with voters.

Organization Map of National Assembly



Executive Government

In 1948 the Government Organization Act specified that the Korean government should be divided into 11 executive ministries: Home Affairs, Foreign Affairs, Justice, National Defense, Finance, Education, Agriculture and Forestry, Commerce and Industry, Transportation, Social Affairs, and Postal Services. It also called for the formation of four nonexecutive ministries: Government Administration, Government Legislation, Planning, and the Bureau of Public Information, along with the formation of three committees: Inspection, Examination, and General Accounting. Since the time of national inception in 1948, the structure of the Korean government has changed through the subsequent decades.

The election of President Park Geun-hye in 2013 ushered in what was called "A New Era of Hope and Happiness." During the launch of the Park administration in February 2013, four key policy objectives were announced: Economic Revival (3 strategies, 42 goals), the People's Happiness (4 strategies, 64 goals), Cultural Enrichment (3 strategies, 10 goals), and the Laying of the Foundation for Peaceful Unification (3 strategies, 13 goals). The Park government also promoted an efficient governmental system which can support what it terms as a "creative economy," and this served as a guiding theme for economic revival, especially through the convergence of science, information and communications technologies. The Park Era also established that public safety is a matter of the highest priority in domestic affairs.

Park Geun-hye was succeeded in May 2017 by President Moon Jae-in. Upon taking office, Moon faced an immediate nuclear war crisis from North Korea.

Judiciary

The judiciary is a governmental body that judges cases according to the law of the nation and includes the Supreme Court and all lower level courts under Supreme Court jurisdiction. The judiciary structure includes the High Courts below the Supreme Court. High Courts all have District Courts, Family Courts, and Branch Courts of the District Courts under the respective judicial circuits. The High Courts and associated courts are distributed locally across the country so that people have convenient access to the courts for the progress of civil, criminal, and family cases. The Patent Court has been established as a special court under the Supreme Court.

The Supreme Court is the highest court in the nation, and Supreme Court Justices hear appeals that will be met with final decisions. As a single-trial court, it mostly handles final appeals cases. As the final jurisdiction, the Supreme Court has exclusive jurisdiction on the cases regarding the decisions of the Marine Accidents Inquiry Agency as well as cases about the validity of presidential and parliamentary elections. The Supreme Court also has jurisdiction regarding whether orders, rulings, or judgments of each court are unconstitutional. Supreme Court decisions are made either by the Supreme Court Justices Council (composed of all Supreme Court Justices), or by the four justices of the Division Court. A quorum of the Supreme Court Justices Council is 2/3 of all Justices including the Chief Justice. A decision is then made by the majority of attendees. In the case of the four-justice Division Court, a unanimous decision is required.

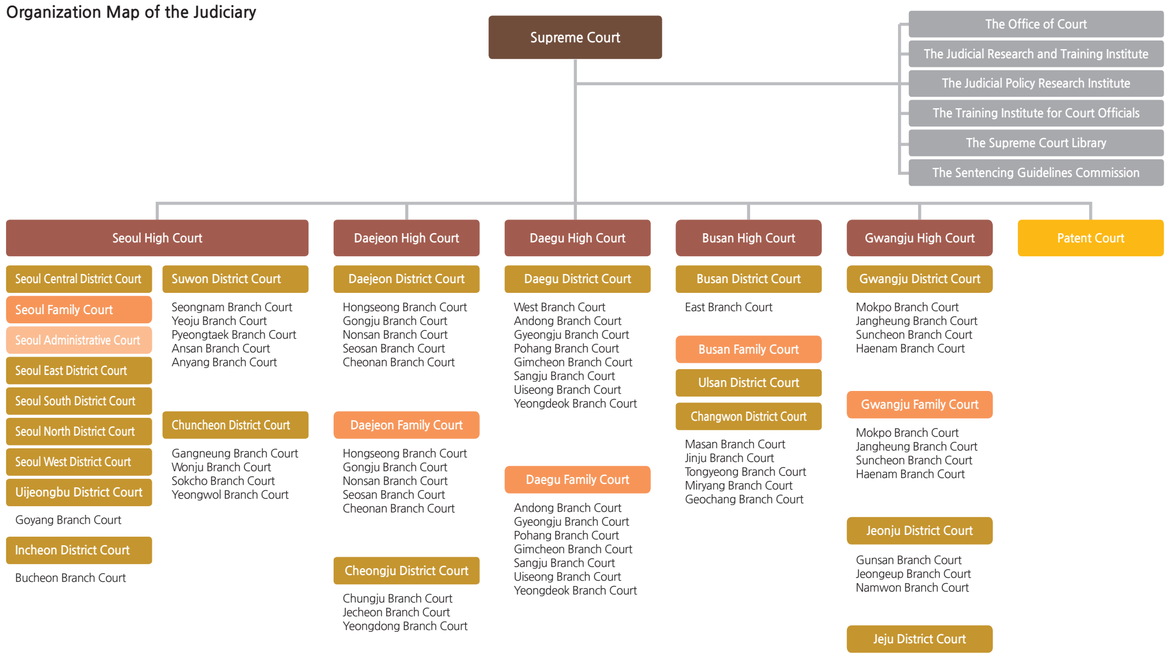
The Supreme Court Justices Council consists of a Chief Justice and 13 other justices. The Chief Justice is appointed by the President and is confirmed by the National Assembly. The term of the Chief Justice is six years, and it cannot be renewed. With the recommendation from a Chief Justice, Supreme Court justices are appointed by the President and are confirmed by the National Assembly. They work for a 6-year term and are allowed to have additional terms. The affiliated organizations under the Supreme Court are the Office of National Court Administration, the Judicial Research and Training Institute, the Judicial Policy Institute, the Training Institute for Court Officials, the Supreme Court Library, and the Sentencing Guidelines Commission.

Analytical Thoughts

How similar is the structure of the South Korean Government to the United States government structure? Can this form of government deliver democracy to the people? Compare and contrast the South Korean government to that of North Korea. The Chief Justice of the Supreme Court of South Korea has a non-renewable term of six years while the Chief Justice of the Supreme Court of the United States is appointed for life; discuss the pros and cons of a limited term versus a life term.

Aerial view of Sejong Metropolitan Autonomous City with central government ministries housed in the long winding building in the center of the photograph and residential high rise buildings on the upper left.

Organization Map of the Judiciary



Spatial Planning

In the process of rebuilding the nation, stabilizing the government and transforming the land, careful thought and legislation must be implemented to realize successful results. Korea has implemented the Spatial Planning Program that must consider a very complex and necessarily harmonious interplay of economic growth, land development, environmental issues, urbanization, transportation efficiency, population distribution, employment, proximity between the work place and home, health care, education, and other social welfare and social services that taken in totality will produce a sustainable high quality of life.

Spatial planning in Korea has been greatly advanced with the development of the national territory since 1960. It is the standardized and refined framework that is utilized to maximize the efficient use of Korean territorial land and water bodies. Spatial planning is also a key component in the Comprehensive National Territorial Plan (CNTP), regional development plans, and comprehensive city/county plans. The intent of spatial planning is to seek balanced approaches to land development, to enhance the competitiveness between regions, and to pursue the environmentally-friendly management of land.

More specifically, the CNTP is a master plan to efficiently manage territorial land resources in a manner that is compatible with the goals and underlying strategies of national policies. The first CNTP (1972–1981) was implemented in 1971; it was followed subsequently by the second CNTP (1982–1991), the third CNTP (1992–2001), and the fourth CNTP (2000–2020). After the implementation of each of the first three comprehensive national territorial plans, newer concerns and unanticipated situations and priorities were learned. New insights were envisioned and adjustments were made to improve planning strategies for the future.

With the rapid economic growth and urbanization in Korea national development progressed in an unbalanced manner. In order to narrow the development gap between regions, various regional development plans have been carried out. Plans such as the Enterprise City, the Innovative City, and the Multifunctional Administrative City have been designed and implemented. In the mid-2010s, a five-year regional innovative development plan has been executed with the aim of promoting local economic self-reliance through regionally specialized development. Additionally a district development promotion plan has also been applied to areas that remain significantly underdeveloped. A culture and tourism development plan has also been prepared to help foster more distinctive regional development projects.

The Fourth Comprehensive National Territorial Plan reflects the integrated national territory of the twenty-first century. It seeks to realize a globally oriented national territorial structure and to promote globally competitive cities based on "Wide Area Economic Zones." To achieve this goal, the Fourth Plan established a national supra-economic network of regional axes which linked Wide Area Economic Zones as well as the coastal areas with inland areas, and further linked the three coastal areas and the border area between South and North Korea.

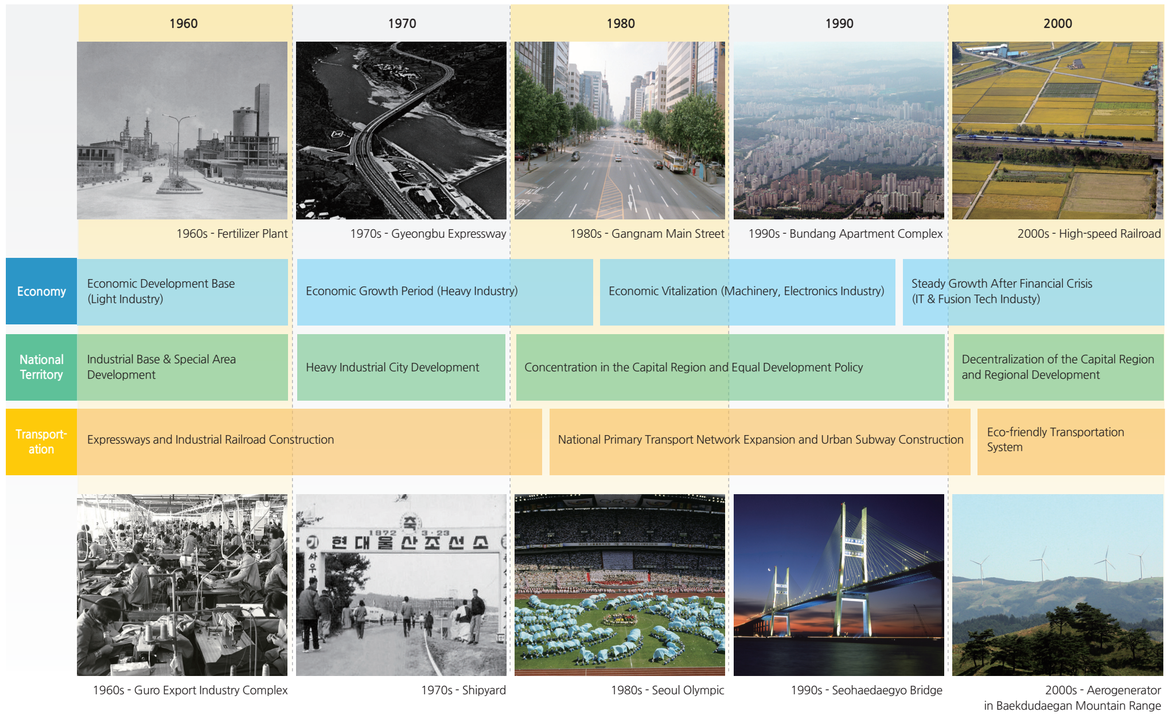
Brief Interpretation of the Map

This map illustrates details on Korean developments and requires careful examination of the symbols for a full comprehension of the various distributions of development structures. While transportation networks stand out and have been adequately addressed with previous maps, the map includes distributions of industrial complexes, high tech complexes, innovative cities, enterprise cities, national parks, ports, and airports. The highest concentrations of national industrial complexes are along the south coast of Korea, around Seoul and the immediate surrounding areas around Seoul. Some are scattered in the central and western portions of the country. High tech industrial complexes are those that specialize in digital innovations; they are mostly located along the Seoul-Gwangju Corridor but always close to urban centers and with easy reach to the expressway. Innovative cities are engaged in research and development, and are scattered in the west and the south. There are fewer enterprise cities than innovative cities; these are focused on promotion of businesses. They are purposely located away from major cities with the aim of promoting the local economy.

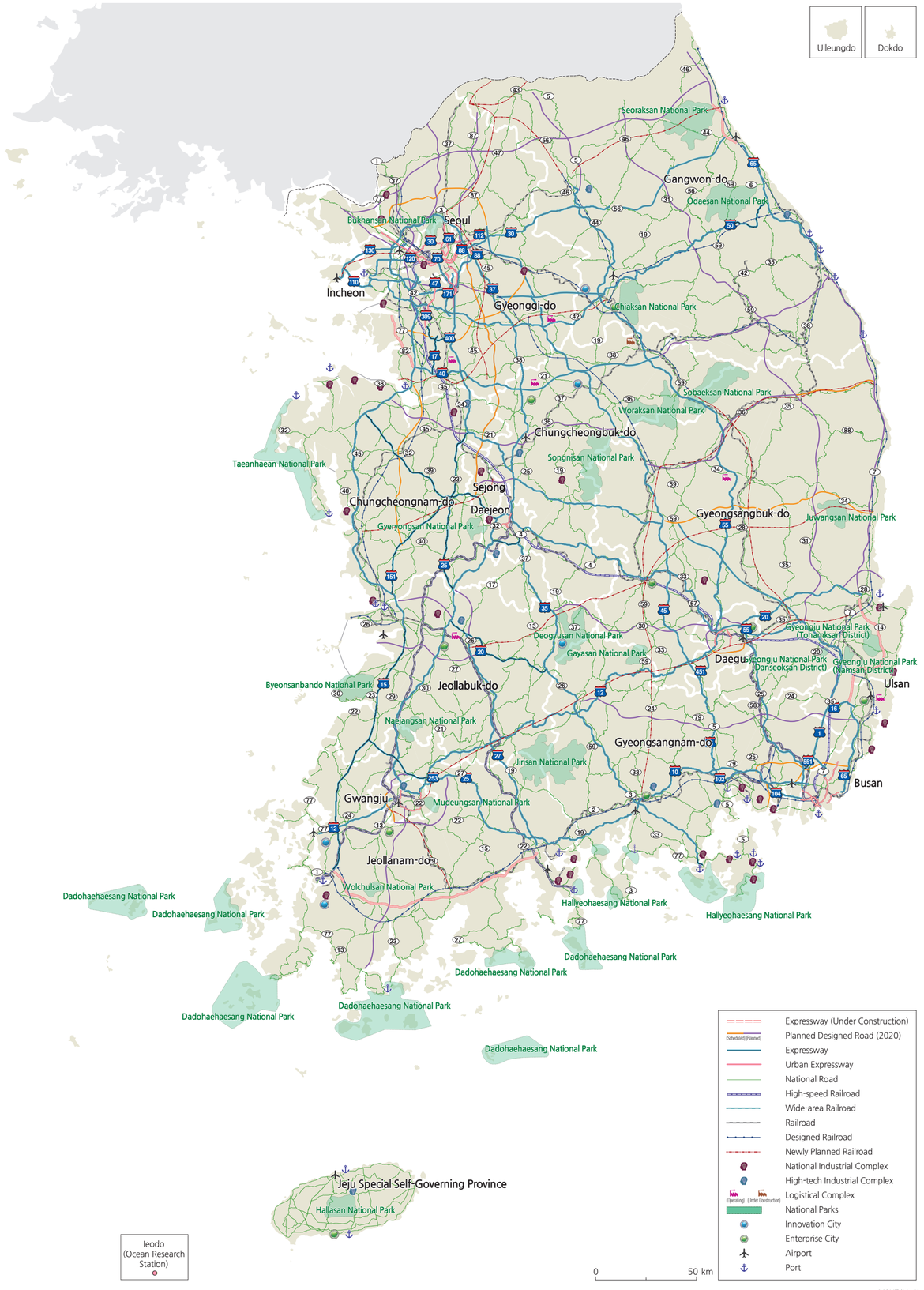
Thus, the planning process is thoughtfully managed to take advantage of local geographies as well as promoting national interests. This particular map is the result of the culmination of three previous versions of spatial planning. As the nation continues to grow with varying degrees of geographic concentration, new developments and new opportunities will continue to define new challenges for an ever changing set of spatial planning components.

The purposes of spatial planning are multifaceted: easing congestion in metropolitan areas, spreading out the location of different industries, sustaining an efficient transportation network nationwide, and providing citizens with a high quality of living. While national parks are not designed to provide important financial gains, they serve as leisurely spaces that support an escape for citizens from daily work stress and perhaps even places to find solitude. Describe the distribution of national parks. What can you conclude about accessibility to the parks? There are several ports along the northeast coast and there are many in the south. Do you think that the northeastern ports serve the same function as those in the south? What do you think are the main uses of the northeastern ports?

Changing Economic and Social Conditions and the Land in Korea



4th Comprehensive National Territorial Planning



MOLIT (2017)

The Development of Transportation and Communication

One of the most important facilities that enable a nation to grow is the transportation infrastructure. It allows for the movement of people, goods, raw materials, food, and other necessary supplies. Roads, railways, airports, and ports are all essential facilities in the process of building a nation.

Since the 1960s, construction of transportation infrastructure took place rapidly. Major national networks such as expressways, railways, airports, and seaports were built and served as the backbone for continued transportation expansion. Numerous important industries were developed along the Gyeongbu Axis, and in order to service those industries a main transportation network was established to connect Seoul with Busan. With the opening of the Gyeongbu Expressway in 1970, the entire nation became more accessible to commuters, making it possible for travelers to move point-to-point in the country within one day ("One-Day Life Zone"). With the opening of the Gyeongbu High Speed Railway in 2004, it became even more so. Literally, a "Half-Day Life Zone" became available.

The cargo capacity at Korean ports has been increasing steadily. Total capacity increased from 82 million tons in 1980 to more than one billion tons in 2013. Busan and Gwangyang are the ports that process the largest amount of cargo in Korea, processing 27% and 20%, respectively. The number of vessel passengers also has increased steadily. It was 8.2 million in 1990, and doubled to 16.1 million by 2013. Categorizing vessel passengers into visitors and island residents, the number of trips by island residents decreased, while trips by visitors have greatly increased. The Mokpo port accounts for the largest portion of passenger travel (39.2%), followed by the Masan port (14.0%) and the Yeosu port (13.3%). As of 2013, there were 55 ports: 14 national ports, 17 local ports, and 24 domestic ports.

Korean airport capacity was 73 million passengers and 2.9 million cargo tons in 1999. It increased to 152 million passengers and 6.8 million cargo tons by 2014. The growth of airport capacity is in line with the global increase in air travel during the period. Comparing domestic and international travel, domestic travel shows little change during the mid-1990s, followed by a slight increase after 2010. On the other hand, international travel steadily increased after the 1990s, with some inflection points during specific periods. A total of 77 airlines operated in Korea during 2013 (7 domestic airlines and 70 foreign airlines), serving the destinations of 152 international cities in 51 countries. The most frequent international destination is Southeast Asia (33.1%), followed by Japan (24.2%) and China (22.6%). Domestically, the Gimpo (Seoul)-Jeju route has been the most popular, accounting for 53.9% of domestic trips.

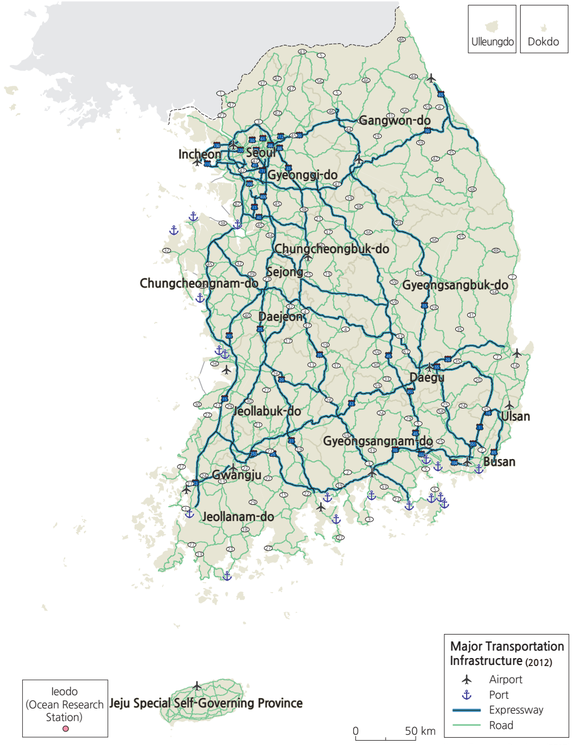
As computers became more widely used, communication through diverse digital devices continued to grow. The development of the Internet, in particular, has made a massive amount of information accessible to people using computers, cell phones, and tablets. Unlike in the past, the bilateral exchange of information is taking place in a diverse and complex manner. The local telephone companies, which were the most important communication providers in the past, have been steadily losing subscribers dropping by 20% between 2004 and 2012. Simultaneously, the number of mobile phone subscribers has continued to increase by as much as 46% during the same time frame. Among mobile phone subscribers the use of smart phones has soared. Since 2012, the number of smart phone users has exceeded that of regular mobile phone users, and the customer market share of smart phone providers has exceeded 50%. As of 2011, 78% of the South Korean population has access to the Internet and 65.2% uses wireless Internet. The number of wireless Internet users has also dramatically increased due to the widening distribution of smart phones.

Brief Interpretation of the Maps

The Infrastructure Map depicts the location of all the airports, ports, expressways, and major roads. It is a complex pattern that blankets the entire country. Consistent with other maps that show development, the north and northeast coastal regions have much less infrastructure, mostly due to topography and the proximity to North Korea. The air traffic map clearly illustrates the north-south trend with no east-west air travel, perhaps because it may be more feasible to drive the east-west span. The four maps display a time-series spatial arrangement of the time it takes to reach any expressway entrance. This map series is a testimonial to the rapid improvement of the efficiency of expressway traffic, and to the coverage of the nation that is serviced by expressways. It also grows parallel to the Korean automotive industry, giving citizens greater freedom of travel on the road. The railroad map identifies the high-speed rail connections between Seoul, Busan, Gwangju, and major cities along these lines. Other railroads also blanket the nation, even to parts of the northeast coast. Perhaps the most intriguing graphics are the distribution and volume map of Wi-Fi usage and the graphs on the number of Internet and smart phone users. The great success of Korean high tech manufacturing and communication industries has enabled the Korean citizens to become global citizens who are cognizant of global events.

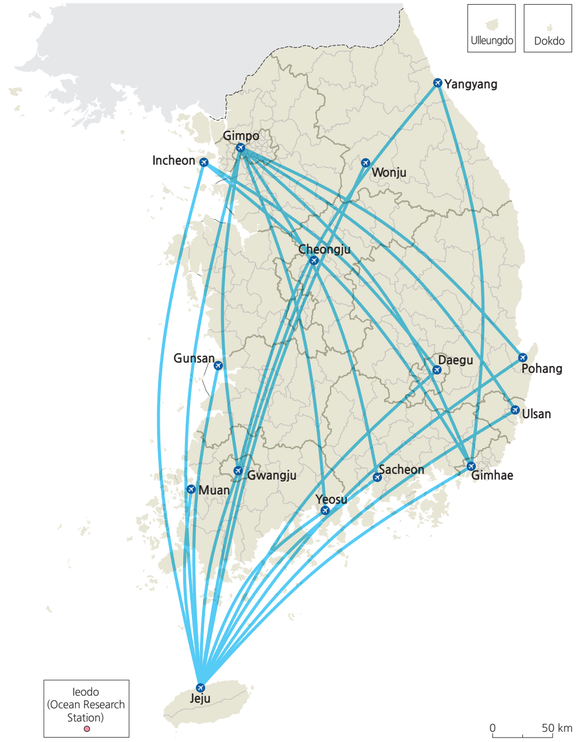
Given the current pattern of the transportation system, do you feel that Korea has achieved the national transportation goals? Justify your answers. Is there still room for improvement? Make suggestions for improvement and where these changes should be implemented.

Major Transportation Infrastructure



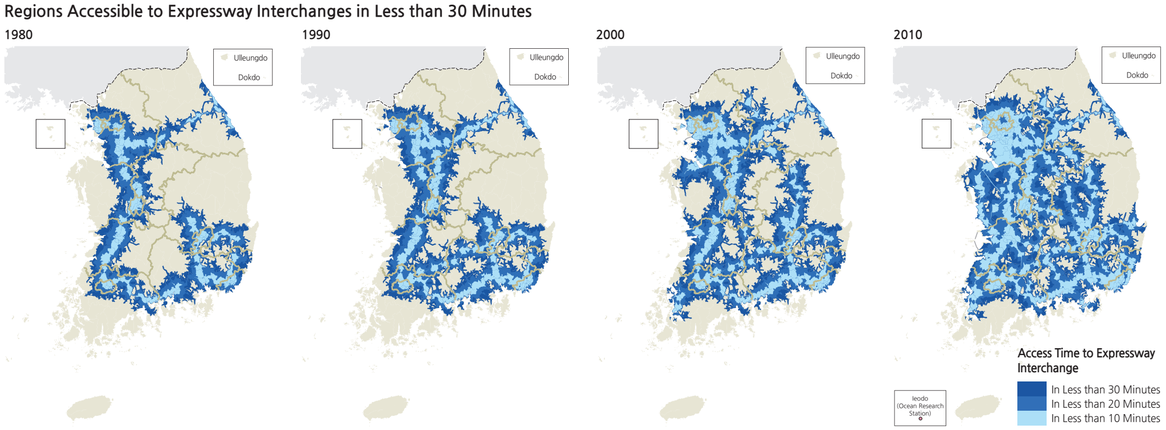
Korea Transport Database (2013)

Domestic Air Routes (2014)



Ministry of Land, Infrastructure and Transport (2015)

Regions Accessible to Expressway Interchanges in Less than 30 Minutes

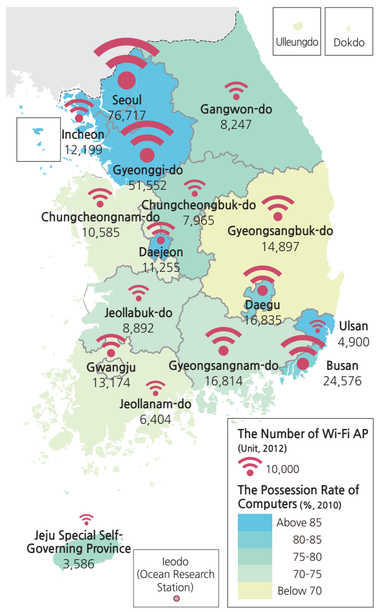


KRIHS (2014)

Major Railways

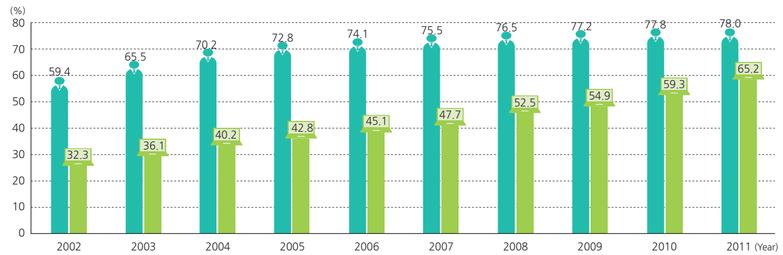
Korea Transport Database (2013)

The Possession Rate of Computers and the Number of Wi-Fi Access Points



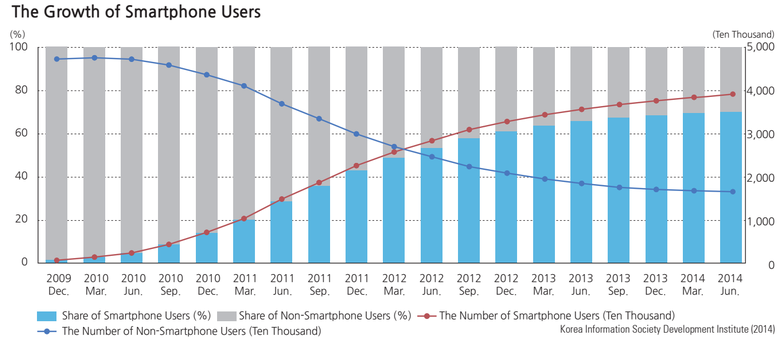
Statistics Korea (2011), The Ministry of Science, ICT and Future Planning (2013)

The Utilization Rate of the Internet



Korea Internet & Security Agency (2012)

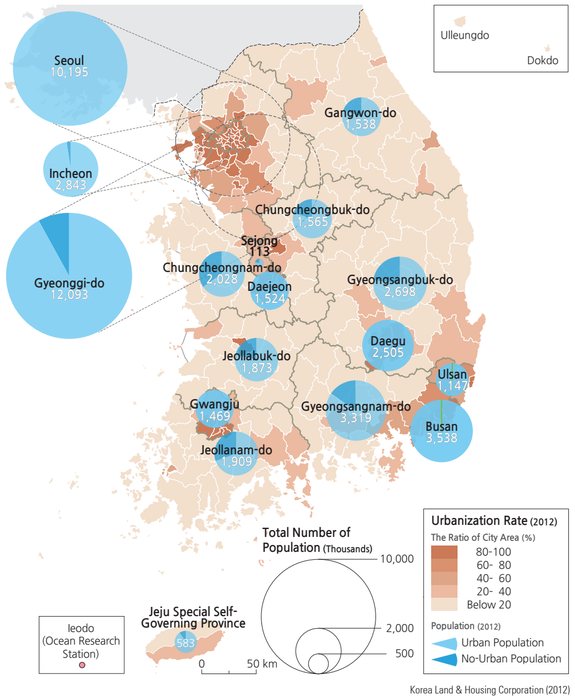
The Growth of Smartphone Users



Korea Information Society Development Institute (2014)

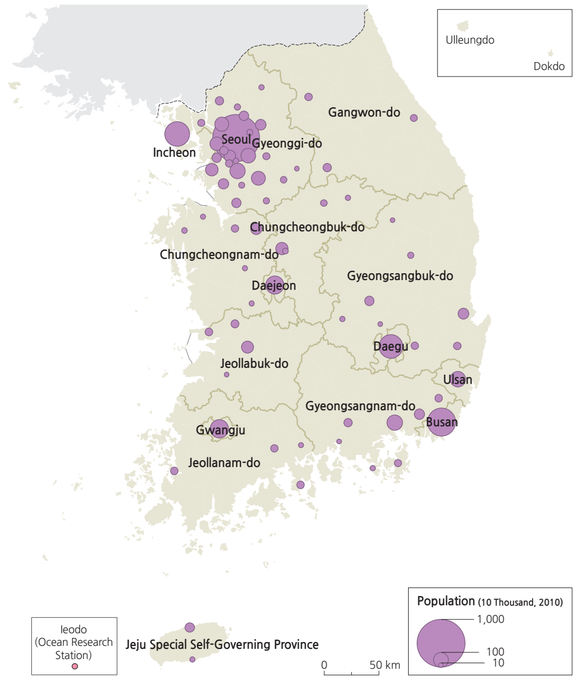
Urbanization

Urbanization in Korea



Korea Land & Housing Corporation (2012)

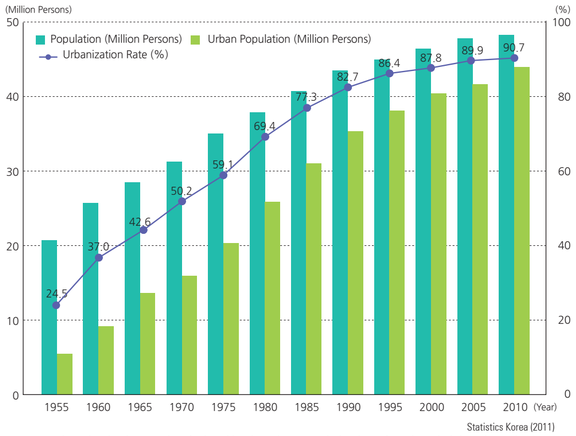
The Spatial Pattern of Cities by Population Size



Statistics Korea (2011)

Note 1: The Ratio of City Area is the ratio of land in Urban Planning Area defined by Urban Planning Law.
Note 2: Urban Population indicates people in Urban Planning Area.

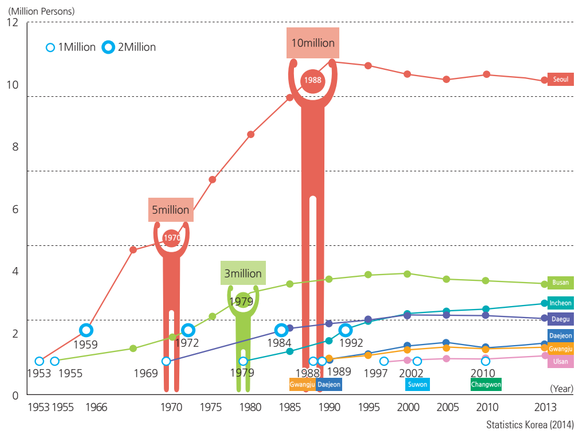
Urban Population and Urbanization Rate



Statistics Korea (2011)

Note: The urbanization rate is calculated by the urban population based on the administrative unit "Eup" and the above level units.

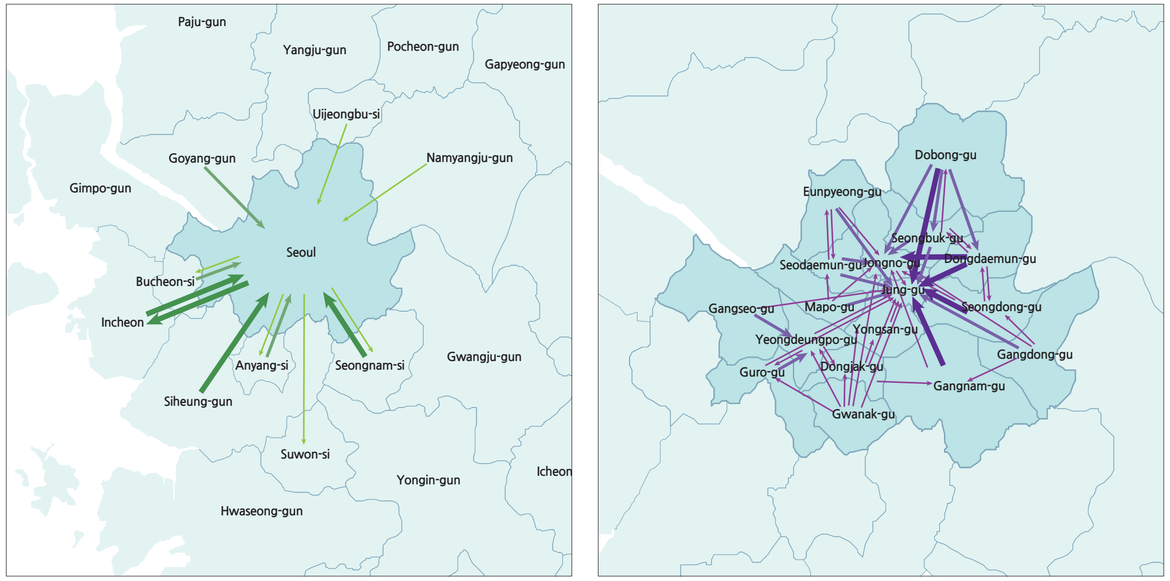
Population Growth in Major Cities



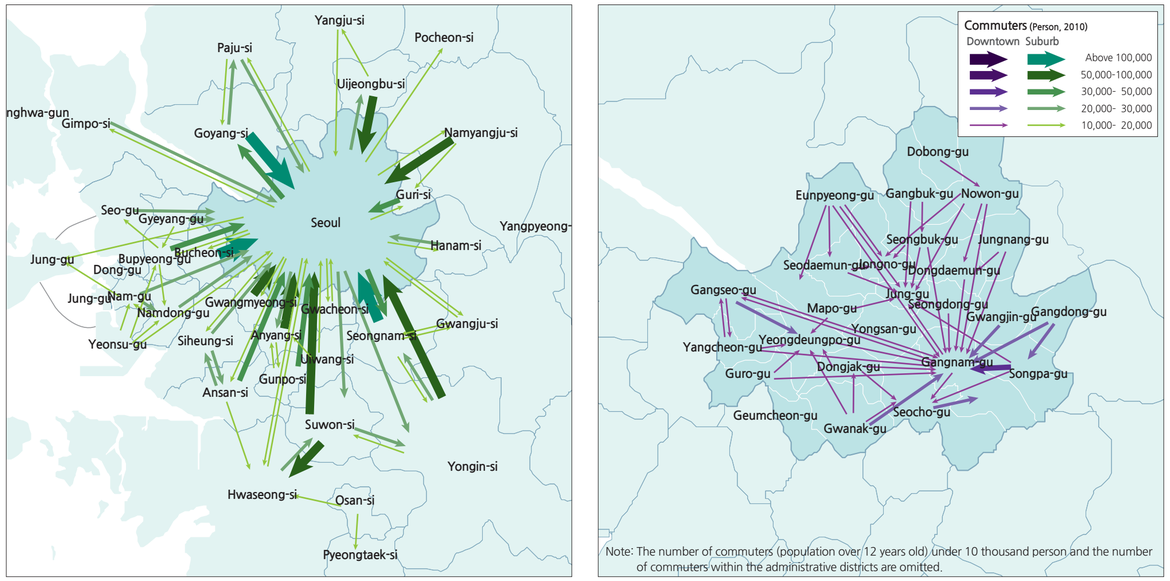
Statistics Korea (2014)

The Growth of Commuters in the Capital Region

1980



2010



Note: The number of commuters (population over 12 years old) under 10 thousand person and the number of commuters within the administrative districts are omitted.

Statistics Korea (2011)

Urbanization

The most notable change in –the Korean landscape over the past 60 years is increasing urbanization. The representative indicator of this process is the urbanization rate that shows the share of people living in urban areas out of the total national population. This statistical number can differ depending on which administrative level unit, the Dong level or the Eup level, is used to designate an area as urban or rural. According to the Eup level, the Korean urbanization rate has exceeded 90%. The rate of increase was rapid until the 1980s, but it has since slowed down. This slowing trend indicates that Korean urbanization has entered a final phase from the earlier acceleration phase. The Seoul-Busan region and the immediate surrounding area as well as other metropolitan cities, all exhibit high urbanization rates.

The list indicating urban growth in Korea when each city reached 1 million residents is shown here in chronological order: Seoul (1953), Busan (1955), Daegu (1969), Incheon (1979), Gwangju (1988), Daejeon (1989), and Ulsan (1997). Among cites that did not meet the metropolitan definition, Suwon exceeded 1 million in 2002 and Changwon in 2010; Goyang and Seongnam are likely to follow. Seoul exceeded 10 million in 1988 and became a megacity even by international standards. Busan, the second largest city, exceeded 3 million in 1979; however, the population stagnated and has decreased in the mid-2010s. The distribution of cities by population size depicts a clear trend of port city development along the southeastern coastal industrial zone as well as the expansion of the greater capital area. These two urban centers in particular prompted the construction of the Gyeongbu Axis or transportation linkage.

The advent of a population increase led to urbanization, both in terms of the increase in the overall number of cities as well as expansions of the cities. In addition, as urban residents moved into the suburbs, urbanization expanded into nearby regions forming greater metropolitan areas. As cities expand, so does the demand for housing and transportation infrastructure; there is likewise a concordant increase in the number of people commuting to and from work or school in the city centers. In the case of the Seoul metropolitan area, the number of commuters from Incheon and Gyeonggi-do to Seoul was 239,000 in 1980; this number increased to 669,000 in 1990, to 1,072,000 in 2000, and to 1,423,000 in 2010. The number of people who commute from Seoul to the suburbs has also increased from 152,000, to 336,000, to 527,000, and to 572,000 during the same decades, respectively. The number of commuters within Seoul has increased significantly as well as that of commuters between the city and the province. In 1980, as many as 3,109,000 people commuted to work or school within Seoul, but that number gradually increased from 4,680,000 in 1990 to 5,257,000 by 2010. The number of people commuting to work or school within Incheon increased from 343,000 in 1980 to 644,000 by 1990, to 983,000 by 2000, and to 1,237,000 by 2010. In particular, the number of people commuting to work or school within Gyeonggi-do increased considerably from 937,000 in 1980 to 1,768,000 by 1990, to 3,441,000 by 2000, and to 5,111,000 by 2010. City buses provided the primary mode of transportation for almost 50% of those people commuting to work or school in 1980, but the percentage of people using the city bus system decreased to less than 20% of the total commuters by 2010 because the means for commuting has become increasingly diversified due to the construction of subway systems and increases in the use of personal transportation. In 2010, approximately 18% of commuters in Seoul relied on the subway systems for their daily travel.

Brief Interpretation of the Maps

Both the urbanization rate map and the spatial pattern of cities map exhibit similar patterns that begin with the linkage of Seoul to Daejeon. The linkage then split into two, one to the southwest to connect to Gwangju and the other to the southeast to connect to Daegu and Busan and other southwestern cities that are industrial centers. These cities attract population because of job opportunities.

The four maps that show commuter traffic in the greater capital area are time sequence maps between 1980 and 2010. The two maps on the left display the increase and changing pattern of commuters between Seoul and the immediate surroundings. The very obvious change is the volume of commuters that have increased over the three decades. Another observable change is the direction of the commuters; by 2010, there was a significant amount of commuters coming into Seoul from the northeast, which did not occur in 1980.

The two maps on the right illustrate the changing patterns of intra-urban commuters in Greater Seoul. From these maps, the volume of intra-urban commuters appears to have declined; however, the origins and destinations have changed. In 1980 commuter origins and destinations centered on Jung-gu whereas in 2010 they shifted to Gangnam-gu. This is a very significant change in the intra-urban commuter spatial pattern.

Referring to the two maps on the right from the Growth of Commuter in the Capital Region maps, what kind of questions can you raise as to why there is a significant change that attracted commuters to go to Gangnam-gu? Is it because of better housing, or jobs, or even entertainment, as Gangnam-gu has a lot of attractions?

Urban Revitalization and New Towns

Since the beginning of rebuilding Korean urban structures in the 1960s, many areas in the inner cities have become old and inadequate for population demands of the 21st century. In order to cope with the physical, social, and economic deterioration of the inner-city, the central government announced the national urban regeneration policy guidelines in 2013. The target areas were selected by three specific indices: decrease in population, decline of industry, and deterioration of housing and overall community condition. Based on these criteria the government has designated 13 regions that are a high priority for development according to urban regeneration policies. Those priority regions have been categorized into one of two types: economic revitalization or community restoration. Since 2013, the projects have been financed by the urban regeneration fund with the expectation that individual pilot projects will result in positive ripple effects throughout the region.

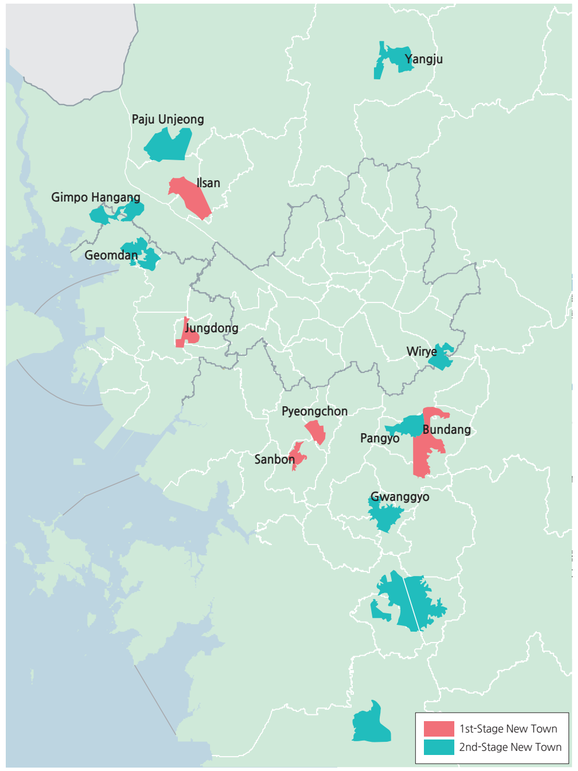
The construction of new, entirely modern towns in Korea began in earnest after the 1960s. This new town policy was centered upon two goals: first, the development of the national territory and all regions of South Korea, second, the resolution of urban problems.

During the 1970s, industrial cities were constructed in maritime regions with the primary goal of promoting heavy chemical industries. The construction of Changwon as a newly industrialized city with a population of 300,000 led to the use of the term of "New Town." In the 1980s new towns in large cities were constructed in both Mok-dong and Sanggye-dong with the primary goal of providing adequate housing. Five new towns in the capital area associated with this First Stage New Town Development were also constructed as a part of a plan to facilitate population dispersion by building two million homes. Daejeon-Dunsan and the Gyeryong area were constructed to facilitate the partial relocation of administrative functions out of Seoul and into the greater metropolitan area. Bundang, Ilsan, Pyeongchon, and Sanbon were all First Stage New Towns.

By the 1990s, there were many criticisms of these simultaneously developed large-sized new towns, and the policy trend shifted toward the development of small-sized communities that were dispersed through the outer areas surrounding major metropolitan communities. Unfortunately, this attempt to redress the problems of First Stage New Towns was hindered by many serious obstacles, not the least of which included the lack of suitable infrastructure. By the turn of the last century, Second Stage New Towns were constructed according to the concept of planned cities. The goal of these was to redress the problems created by the past approach to development and to supplant the smaller-sized dispersed development model with a more idealized model. Pangyo, Dongtan, Gimpo Hangang, Paju Unjeong, Yangju, Wirye, Godeok, Geomdan, Asan, and Daejeon-Doan are all examples of planned cities.

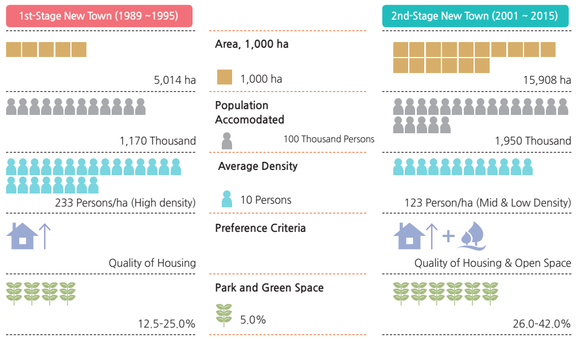
A new approach to developing Korean national territory resulted in the adoption of a multi-core distribution structure that shifted the focus from the capital region to the nation at large thereby allowing more region-to-region balance. This approach to decentralization can be seen in projects such as the construction of multiple "Enterprise Cities" in the late 2000s that were central to the government strategy to foster five mega-regional economic zones and two individual economic zones. The goal was to provide a broader distribution of development initiatives which might help to create competitive agglomeration economies. The main strategy was to attract private investments and to expand the growth potential in each mega-regional economic zone.

The New Towns near Seoul



Ministry of Land, Infrastructure and Transport (2014)

Comparison of 1st-Stage and 2nd-Stage New Towns



The case of Sejong City, which was built as a completely new city to house many governmental ministries, is a prime example of carefully researched and planned exemplary work in urban planning. Here, the government office complex is designed with sufficient housing with comfortable dwellings for government workers who were moved here from Seoul. Rooftop garden spaces and exercise facilities adorn the government office complex.

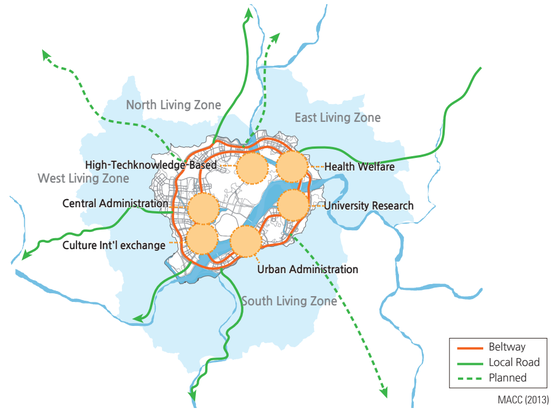
The Park Geun-hye government established a new regional development policy that created what was called the "HOPE Area," in which all basic daily services are integrated into a single living area. Here "HOPE" refers to the first characters of four policy visions, "Happiness, Opportunity, Partnership and Everywhere." The new policy was designed to establish autonomous development plans based on local conditions and aims to improve the quality of life for local residents no matter where they are located: in the rural areas, the rural-urban transition zones, or the core of the cities.

Brief Interpretation of the Maps

The Sejong City map illustrates the careful urban planning process that maximizes the interactions between government, high-tech development, university research, medical facilities, cultural centers, and residential districts. The new town map shows the boundary of Seoul and proximity to the First Stage New Town and Second Stage New Town developments. The Second Stage was implemented to correct some of the unforeseen inadequacies of the First Stage New Town developments.

If you are building a completely new city, list and discuss the major work that you have to do to achieve this accomplishment. What must you provide to sustain the population that is expected to move in and live here?

Sejong Urban Development Plan by Living Zone



MACC (2013)

Rooftop garden adorns the government office complex in Sejong. High rise buildings in the back are residential complexes.

Ilsan

Bundang

Jungdong

Pyeongchon

Sanbon

Pangyo

Gimpo Hangang

Dongtan 1

Paju Unjeong

Wirye

Economy and Industry

In addition to a functional government, good transportation infrastructure, and sound spatial planning, the transformation of a nation also needs economic growth and successful industries. Since the founding of the Republic of Korea in 1948, there was a gradual transformation of the Korean economy from agriculture, fishery, and forestry to that of industrialization. Plans for industrialization began in the 1960s that resulted in achieving growth rates of 8.4% in the 1960s, 9% in the 1970s, and 9.7% in the 1980s. Manufacturing, in particular, maintained an average growth rate in excess of 10%: at 16.8% in the 1960s, 15.8% in the 1970s, and 12.2% in the 1980s even with decadal fluctuations.

Since the 1980s, the government adopted a different strategy, and promoted and implemented several ideas including export-oriented manufacturing, development of intellectual talent to conduct research and development across all industries, and encouraged 'chaebols' or conglomerates. Through spatial planning, the government also developed multiple port facilities along the southeast coast that expedite import-export activities. This strategy began to pay off in the 1990s when the high-tech manufacturing industry rapidly expanded because Korea had the vision of developing intellectual talent in research and development.

As these industries developed, the need for service industries became more important and ultimately became indispensable. Service industries such as banking, financial services, insurance, freight, logistics, communication, and digital services dramatically expanded since the 1990s. By the 2010s, the service industry has become the highest source of employment in the nation.

Primary industries such as agriculture, fishery, and forestry greatly declined from 40% in the 1950s to only 3% of the national economy by the 2000s. During the same period, manufacturing increased from 12% to 27.4%. These recent trends of the Korean economy illustrate the evolution to secondary (manufacturing) and tertiary (service) industries.

The measurement of the success of a nation is normally based on economic indices. Different nations adopt different indices. In Korea, such measurement is based on the Gross Domestic Product (GDP) along with the total number of establishments and employees, value added by industries, international trade and balance of payments, research and development activities, local finance, and other statistical indicators. According to the World Bank (2014), the gross domestic product (GDP) of Korea was ranked 12th in the world in 2014 at 1,486 trillion won, or 1,410 billion USD. When the GDP is adjusted to reflect the Purchasing Power Parity, it ranked 13th place.

An analysis of the changes in the industrial structure by industrial sector reveals that the proportion of the gross domestic product accounted for by the agriculture, forestry, and fishery industries declined sharply to only 2.3% by 2014. Mining and manufacturing was at 30.3% in 2014, demonstrating a continuous increase. Services and other tertiary sectors increased to 67.4% by 2014, showing a proportional increase. These trends illustrate how the industrial structure of Korea was reorganized after 1970, with –the proportion of the Korean GDP evolving from a primary industrial structure to predominantly secondary and tertiary industries.

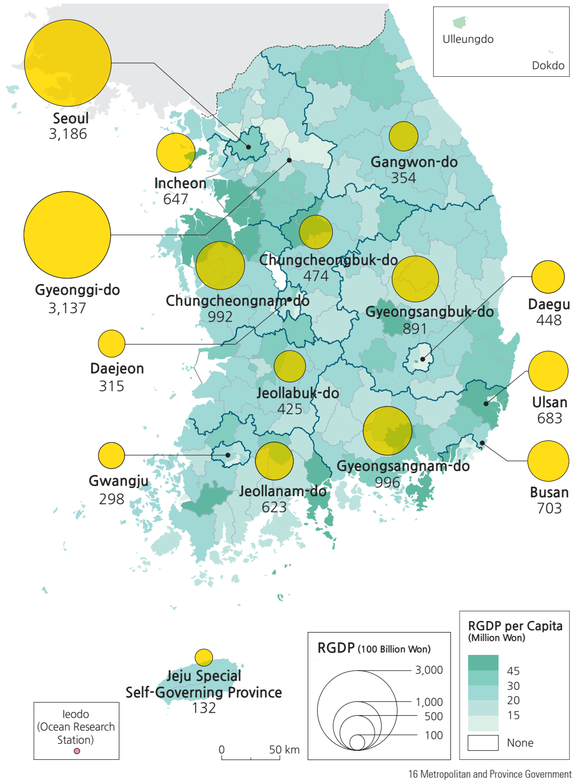
Brief Interpretation of the Maps

The 2012 Regional Gross Domestic Product (RGDP) map displays two related but quite different distributions of economic information. The graduated circles on this map depict total RGDP in 100 billion won per metropolitan and province units and are concentrated as expected in urban and more industrialized districts. The choropleth data illustrates RGDP per capita in 100 million won in si-gun-gu sub-districts of provinces. The per capita map element shows a quite different data set. Although the patterns are similar there is an additional type of difference. The per capita information displays a color code that represents an average of all the residents of the sub-district that gives a sense of the differences in general composition of the population in the sub-districts. Compare the sub-districts of Ulsan and Busan. Although both have nearly the same RGDP, Ulsan has a higher per capita data value than Busan and a much higher per capita value than nearby Daegu.

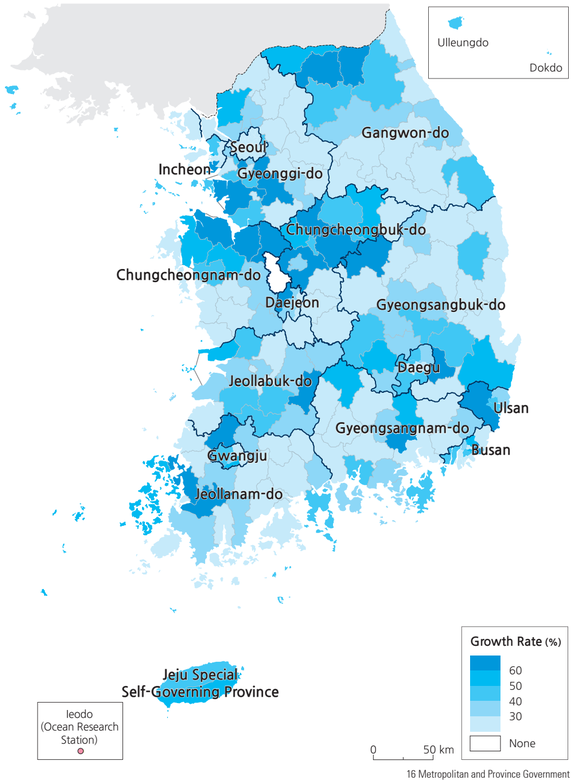
The map titled "Growth Rate in RGDP (2007–2012)" details the rate of growth. That pattern is basically extending the choropleth information on the other map backwards five years by sub district.

Compare the growth rate of Daegu, Busan and Ulsan over the five year period shown on the 2012 map. Might that pattern have a bearing on per capita RGDP differences on the 2012 map? Could you propose which could cause the differences?

Regional Gross Domestic Product (2012)

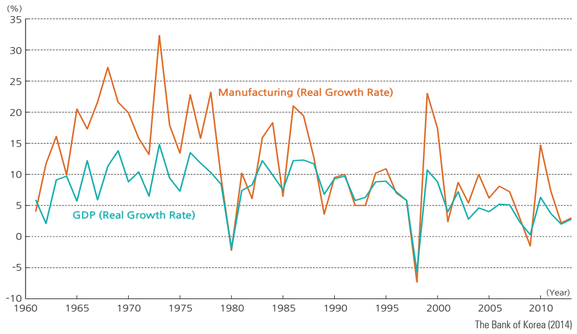


Growth Rate in RGDP (2007-2012)



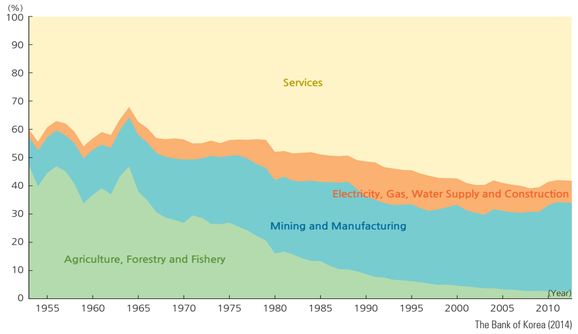
16 Metropolitan and Province Government

GDP and the Real Growth Rate of Manufacturing



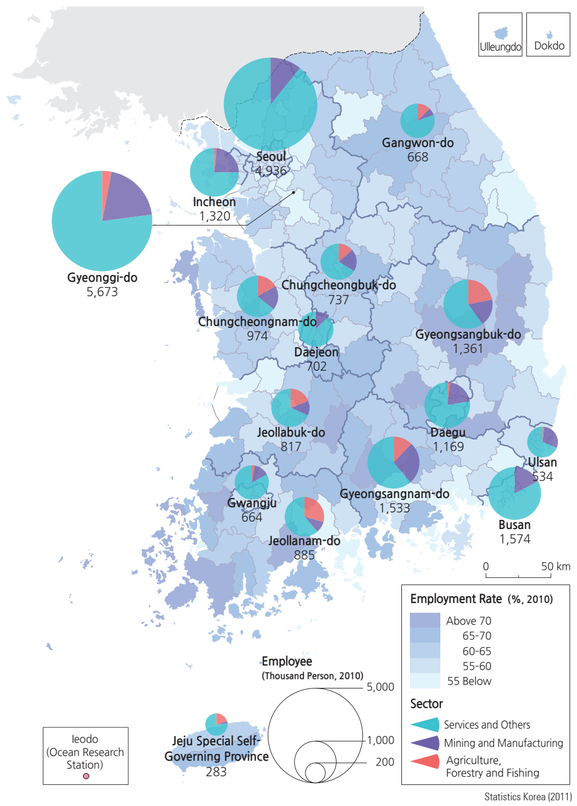
The Bank of Korea (2014)

The Share of Value Added by Industry



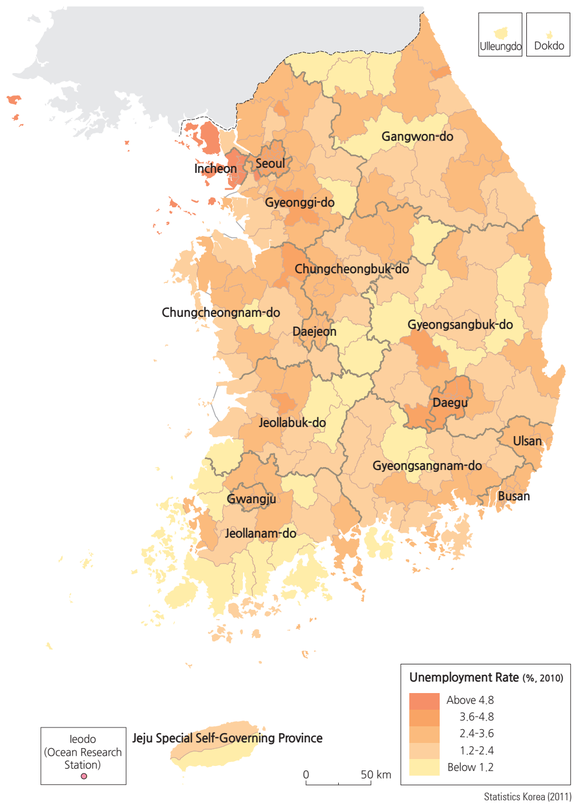
The Bank of Korea (2014)

The Share of Employees by Industry and the Employment Rate



Statistics Korea (2011)

Unemployment Rate



Statistics Korea (2011)

Employment

National economic activities can be reviewed through the characteristics of employment. 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 the active economic activity of a nation. The employment rate is the number of employed persons as a percentage of the entire population group older than 15 years of age. The unemployment rate indicates the number of unemployed persons as a percentage of this economically active population.

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.

As of 2013, the total employable population in Korea over 15 years old was about 42.1 million. Of that, the economically inactive population, who are not actively searching for jobs (for reasons such as child rearing, homemaking, in school, in national defense, and for any other social reason) was 16.2 million. Therefore, the economically active population, those who are currently employed or actively searching for jobs, was 25.9 million. In 2013, the employed population was 25.1 million (96.9 percent), while the unemployed was 0.8 million (3.1 percent).

Brief Interpretation of the Maps and Graphs

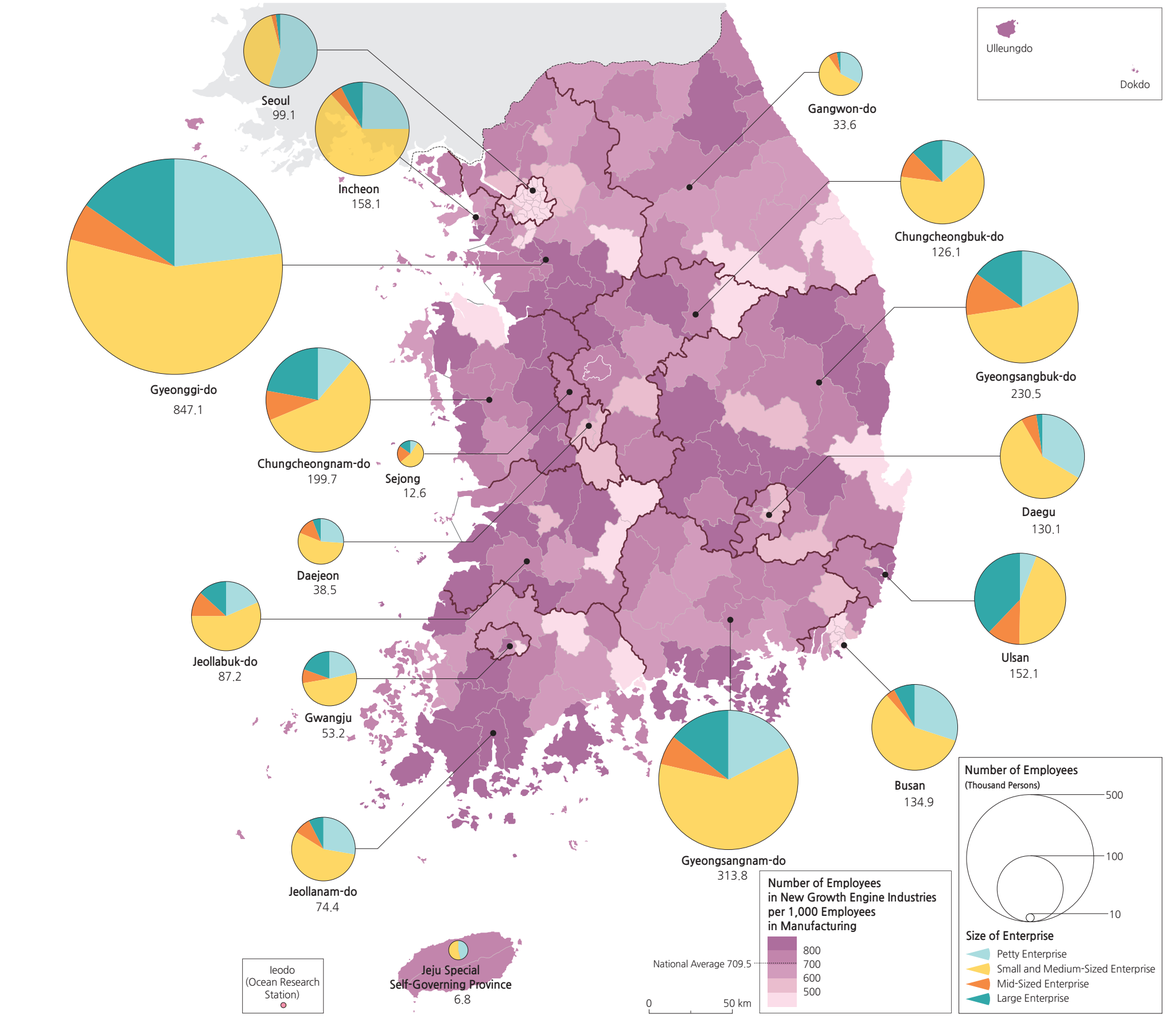
The Share of Value Added by Industry graph is an important element to the understanding of the changes in South Korea since the end of the Korean War. It shows a trend that has been intentionally planned and controlled by the government. After a few major economic spikes and drops in the 1960s, the agriculture, forestry and fisheries have steadily declined, while mining and manufacturing have steadily increased accompanied by a steady increase in the service, energy and construction sectors. The service sector such as banking, communications, transport and other such elements that support the heavier mining and manufacturing industry has increased concomitantly with mining and manufacturing.

While the percentage composition of the service industry has increased, actual employee numbers have increased more. In the metropolitan and provincial levels, the service industry throughout the country comprises a minimum of 60% of the workforce and in Seoul, over 80%. The percentage of people employed in all sectors in the sub-districts is quite variable. The unemployment rate depicts some interesting patterns with a band of higher unemployment around some the metropolitan areas.

Incheon and Daegu illustrate a concentrated zone of high unemployed (low by standards of some other nations but high by South Korean standards). What could cause this increased unemployment on the fringes of these and some other cities? Many of the island sub-districts along the south coast of South Korea show a relatively high rate of unemployment. Are there obvious reasons for this pattern? Are there other island clusters in South Korea with a similar pattern? Would they have similar reasons?

New Growth Engine Industries

Employees in New Growth Engine Industries (2013)



Statistics Korea (2013)

When existing major Korean industries have matured, they may experience slower economic growth and lose job creation potential. New growth engine industries are those that will continually bring high value-added industries through the evolution of existing industries in technological innovations, convergence, and services. In 2009, the government selected 17 new growth engine industries in three major growth fields, namely green technology, high technology convergence industry, and high value-added services. Convergence industry is one that integrates digital components to industries that did not utilize them before. New growth engine industries that belong to manufacturing categories include the broadcasting and communications convergence industry, IT convergence system industry, robotic application industry, advanced materials and nanotechnology convergence industry, bio-pharmaceutical industry, medical appliances and instruments industry, and high value-added food industry.

As of 2013, there were 233,099 enterprises in new growth engine industries in Korea with 2.69 million employees, constituting 62.9% of the total manufacturing enterprises and 71.0% of the total employees, respectively. In terms of enterprise size, there were 88 large enterprises, 428 mid-size enterprises, 44,438 small to medium enterprises (SMEs), and 188,145 petty enterprises, making up 0.03%, 0.2%, 19.1%, 80.7% of the total enterprises, respectively; these percentage distributions reveal a heavy concentration in small industries. Regional distribution of enterprises centered in Gyeonggi-do (29.8%), Seoul (10.1%), Gyeongsangnam-do (9.4%), Daegu (7.6%), Busan (7.2%), Gyeongsangbuk-do (7.1%), and Incheon (6.3%). Of the total new growth engine industries, 46.2% were located in the Greater Seoul Metropolitan Area.

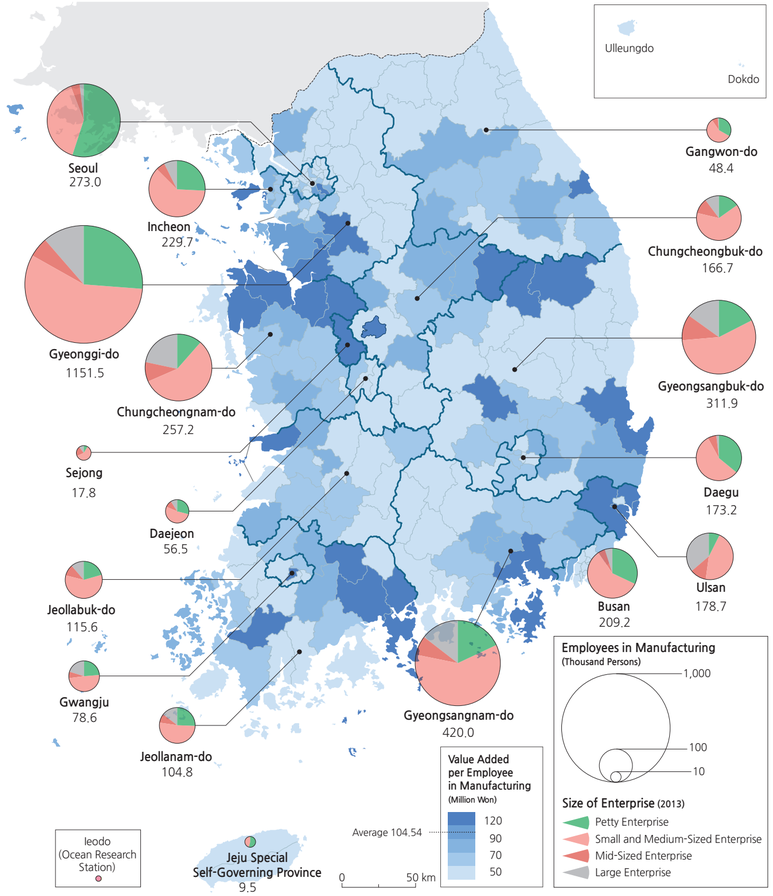
Brief Interpretation of the Map

The locations of New Growth Industries are evenly located throughout seventeen South Korea metropolitan and provincial sub-districts. This distribution indicates that the government is trying to ensure that economic growth and employment in growth industries take place in all parts of the country. In almost all areas of the country, the size sector that is over 50% of the new industries is in the small to medium sized firms.

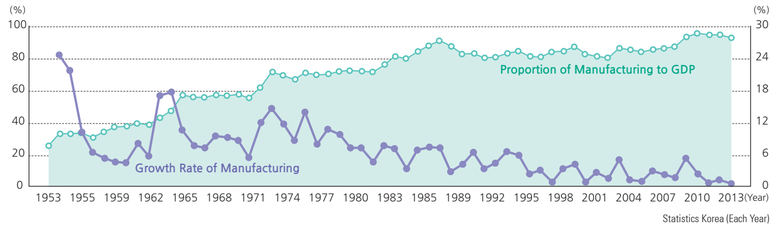
Nine of the larger districts and most of the sub-districts of Seoul have the lowest number of employees in the country. Inspect the location of these sub-districts and postulate why these have employment numbers well below the national average. Are the sub-districts outside of Seoul likely to have different reasons than the Seoul areas? Is this a policy for the government to encourage reduction in the population concentration of Seoul? Or is there a greater proportion of employees engaged in employment other than the new growth engine industries in subdistricts of Seoul?

Manufacturing Industry

Employees in Manufacturing (2012)

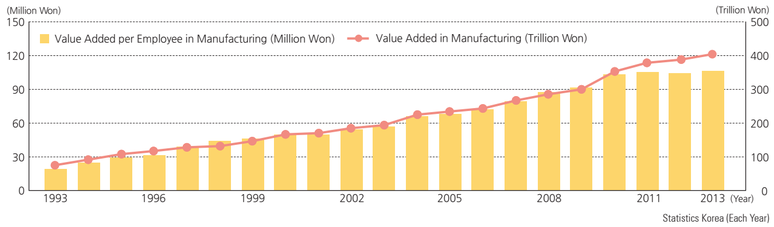


Manufacturing Industry's Growth Rate and Proportion to GDP (1953-2013)



Statistics Korea (Each Year)

Changes in Value Added in Manufacturing (1993-2013)



Statistics Korea (Each Year)

The manufacturing industry of Korea has gone through tremendous continuous growth during the last fifty years. It first pursued a strategy of exporting products from light industries such as textiles, wigs, and shoes. Since the mid-1970s, government industry promotion has shifted to the heavy chemical industry. 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.

Analyzing trends by comparing the proportion of manufacturing growth in Korea to GDP (Gross Domestic Product) reveals that manufacturing accounted for only 10% of the GDP before 1960. During the decade from 1961 to 1970, manufacturing grew from 11.8% to 17.2%. In the 1970s, manufacturing accounted for over 20% of the total GDP. In the 1980s, the growth rate for the decade was 24.3% and manufacturing became the major driving force of economic growth in Korea.

Between the late 1980s and early 1990s, the manufacturing share of the GDP declined slightly from 27.2% (1988) to 23.9% (1992), after which it gradually rose again, remaining at around 27–28% into the 2010s. Although the real growth rate of the manufacturing industry remained at relatively high levels (16.8% in the 1960s, 15.8% by the 1970s, and 12.2% by the 1980s), it later declined to 6.5% in the 1990s and to 4% by the 2000s. In particular, with the 1997 financial crisis resulting from internal and external factors and the global financial crisis of 2008, manufacturing fell significantly, recording a negative rate of growth.

During the early industrialization stage in the 1960s, Seoul was the most important manufacturing center in the country. Since the 1980s, however, manufacturing has become suburbanized and decentralized outside of the Greater Seoul Metropolitan Area. At the same time, foreign direct investments in China and Southeast Asia have accelerated as the wage increases have surpassed productivities and weakened cost-competitiveness.

Brief Interpretation of the Map

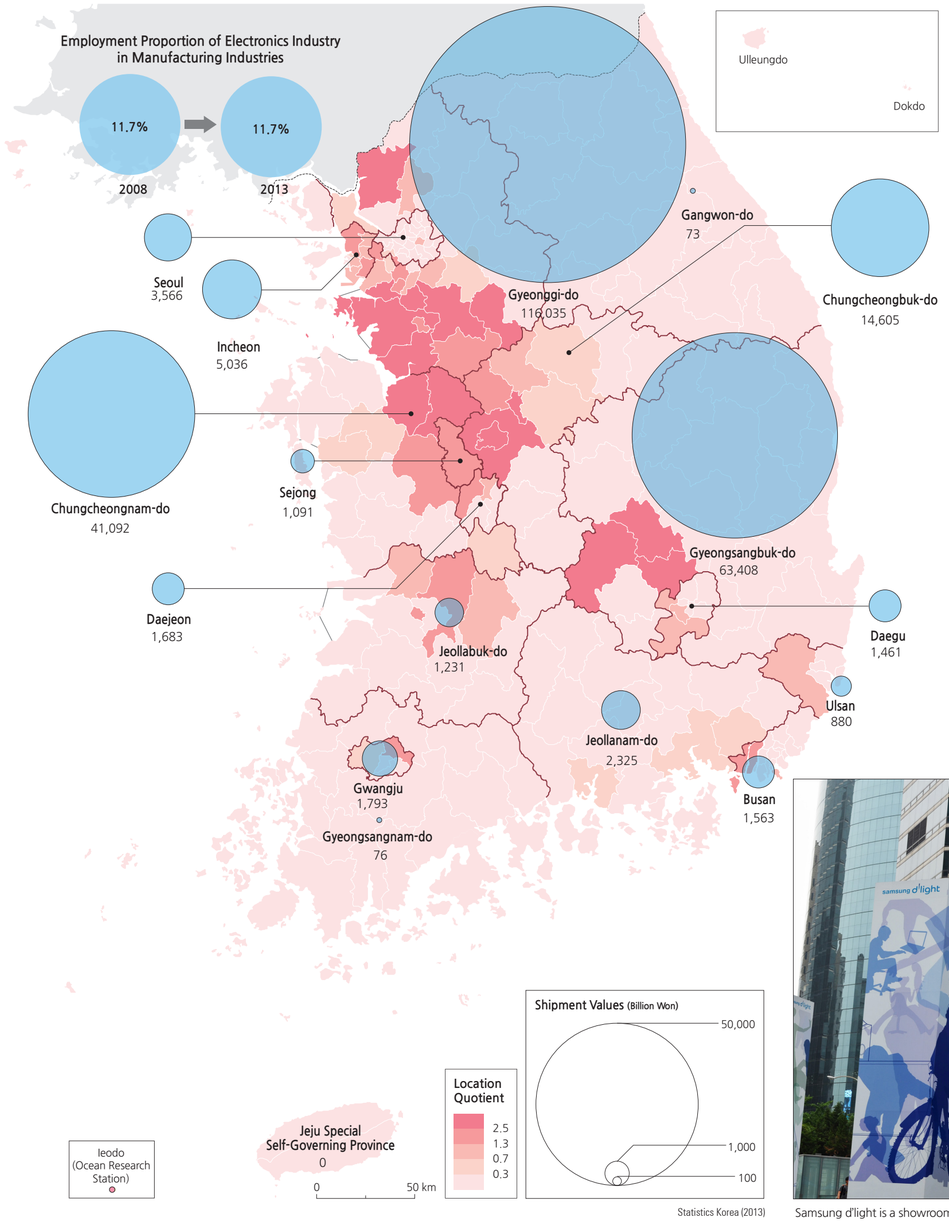
The map on this page explores how different sectors (very small to large) of the manufacturing industry contribute to the Korean economy. Using the uncommon statistic of Value-Added by Employee Index, the sizes of the industries in the different provinces and metropolitan areas are compared. Throughout the country, small to medium sized manufacturing industry dominates, ranging from 45% up 65% of the total everywhere. The largest employers are located in the newer locations, while the traditional 1960s growth centers employ fewer people. It is interesting that the highest Value-Added sub districts are not associated with the larger metropolitan areas but with locations designated by the government for special development attention.

The growth rate of manufacturing compared to proportional contribution to the GDP shows a steady inverse relationship since 1953. The growth rate has steadily decreased to the present while the proportion of contribution to the GDP has steadily increased, bringing attention to the growth of economic contribution of manufacturing of all sizes.

Manufacturing does not have the same working conditions and worker training requirements compared to other types of industry. If you were exploring sites for a new fish processing and canning plant, would the Value-Added industry cost and requirements of the average sub-district worker narrow your site options? Would other locational and working condition factors weigh more heavily in your choice, rather than the Value-Added Employee Index of a sub-district?

Electronics Industry

Electronics Industry (2013)



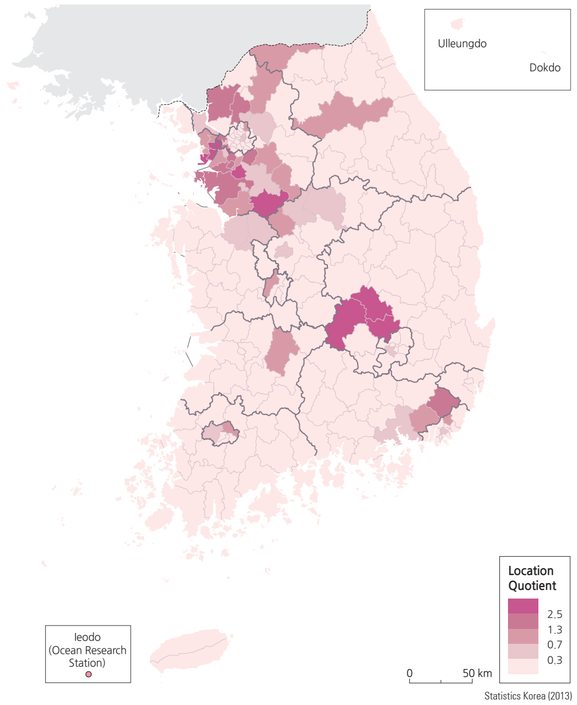
Statistics Korea (2013)

Samsung d'light is a showroom that displays all the latest innovations for Samsung electronic products.

In the 1980s, the electrical and electronics industries, which centered on household electrical appliances as well as industrial products, were the driving force of the Korean economy. Major sectors were the household electronic appliance industry, semiconductor industry, computer and telecommunication industry, and electronic components industry.

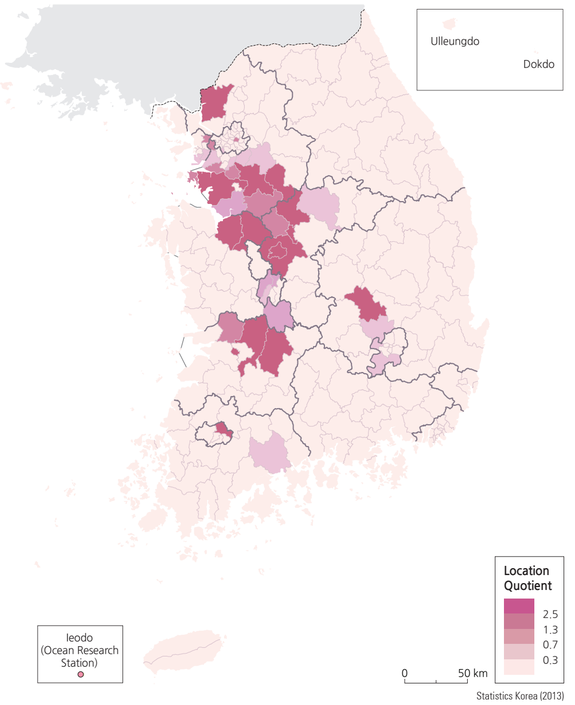
These trends have continued. Location quotients for electronic industries (indices for quantifying how concentrated an industry is by location) indicate that the regional concentrations are clearly in Gyeonggi-do, Chungcheongnam-do, and Gyeongsangbuk-do. Value-added production costs, and firm sizes in Gyeonggi-do, in particular, are highest in the country instead of metropolitan centers. The distribution of specialized items or industries also appears to be different for each sub-section. The household appliances industry is regionally concentrated in Suwon, Gimcheon, and Gumi while the semiconductor industry shows a high concentration in Icheon, Yongin, and Hwaseong. The electronic components industry is concentrated in Paju, Asan, and Gumi. The computer and communication equipment industry is concentrated in Gumi, Pyeongtaek, and Chilgok-gun. Thus Gyeonggi-do and Gyeongsangbuk-do Provinces have prominent regional concentrations.

Household Electric Appliances Industry



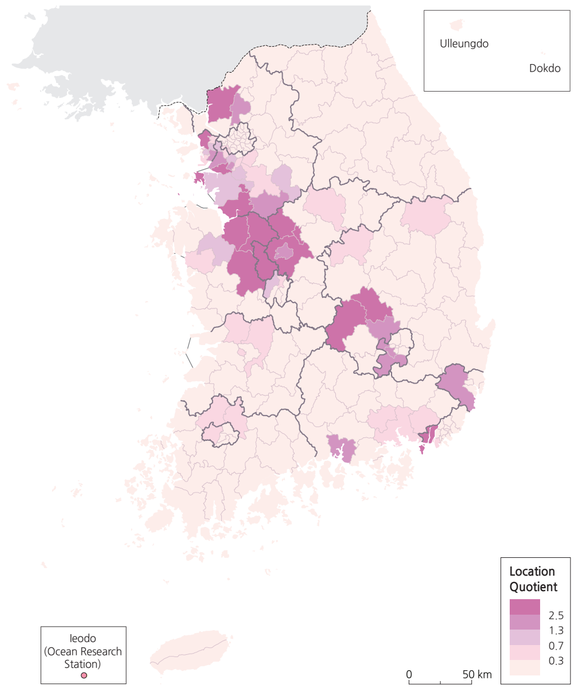
Statistics Korea (2013)

Semiconductor Industry



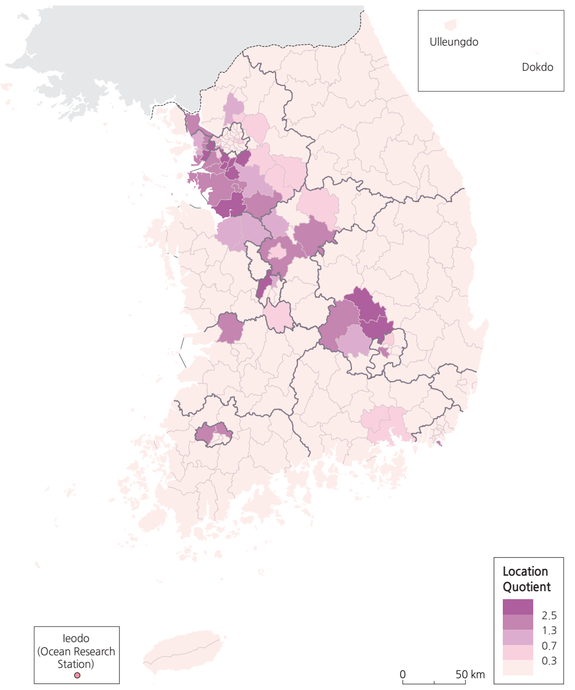
Statistics Korea (2013)

Electronic Components Industry



Statistics Korea (2013)

Computer and Telecommunication Industry



Statistics Korea (2013)

Brief Interpretation of the Maps

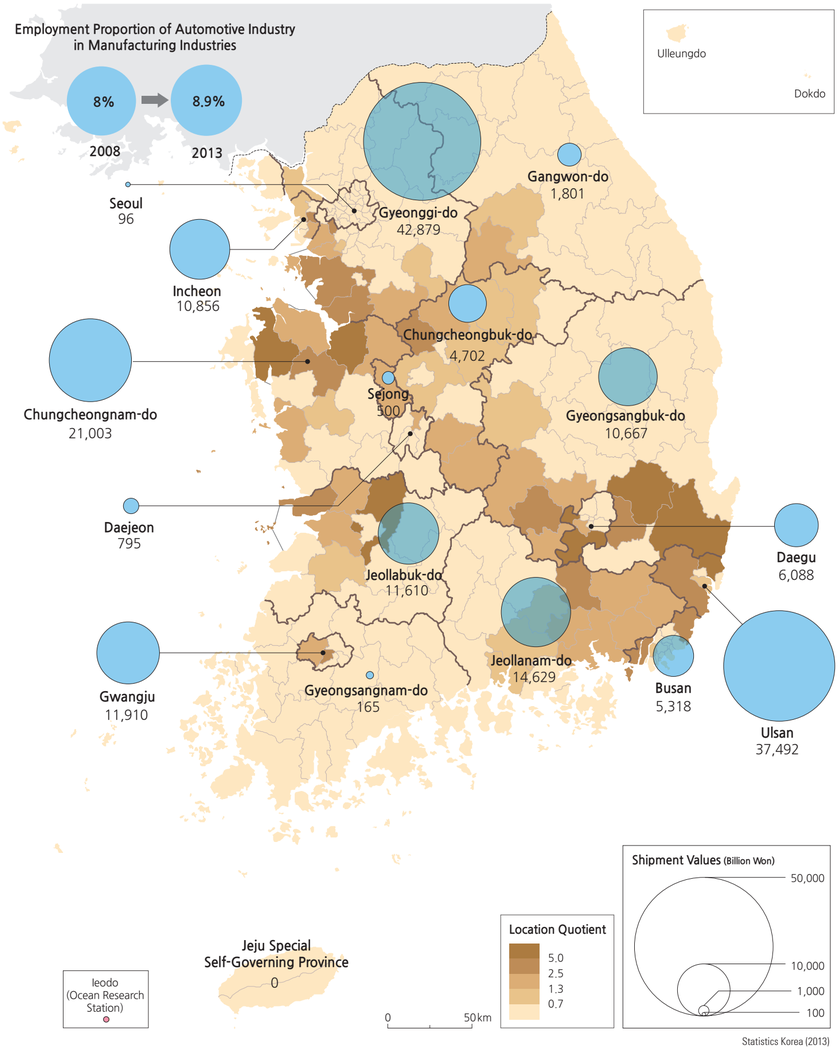
As noted above the Electronics Industry is exceptionally concentrated in just a handful of locations in South Korea. In addition, the four different sectors of the industry are also concentrated in distinct locations within the overall distribution of the industry in general. The four upper right maps illustrating the different sectors emphasize just how much spatial compression exists in the industry that has comprised in excess of 11% of the manufacturing industry over the last five years.

The lower right map displays a "location quotient." This is an index of concentration that emphasizes the visual concentration of the industry which the maps above illustrate. In addition to concentration, the lower map depicts with graduated circles the distribution of the value of the products shipped from the different areas in Gyeonggi-do Province.

When an industry sector is densely concentrated, it indicates that the economies of scale and associations exist that old companies need and new firms use to grow. When these factors are apparent, what are they? In many such high value product sectors rapid communication contributes to success. Are these communications in a digital or a physical form? What type of break in this communication would cause a major disruption in production?

Automotive Industry

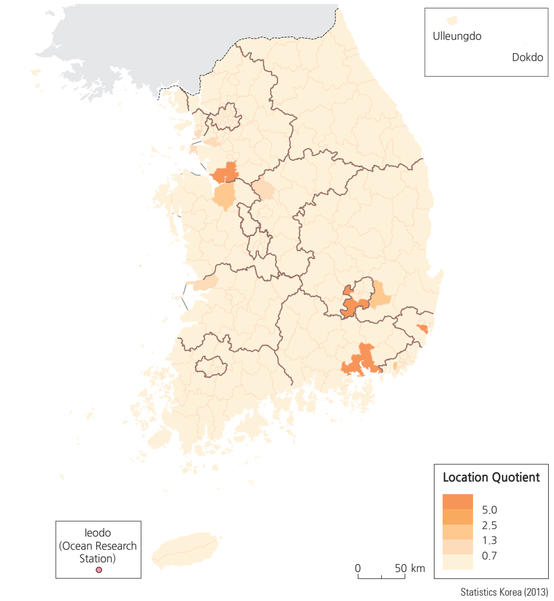
Automotive Industry (2013)



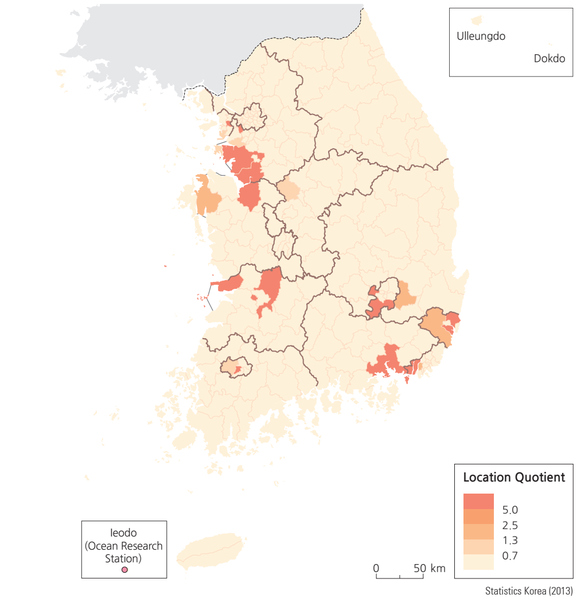
The Hyundai automobile assembly plant and office building in Ulsan

A large number of cars wait to be loaded on to a shipping vessel bound for overseas markets

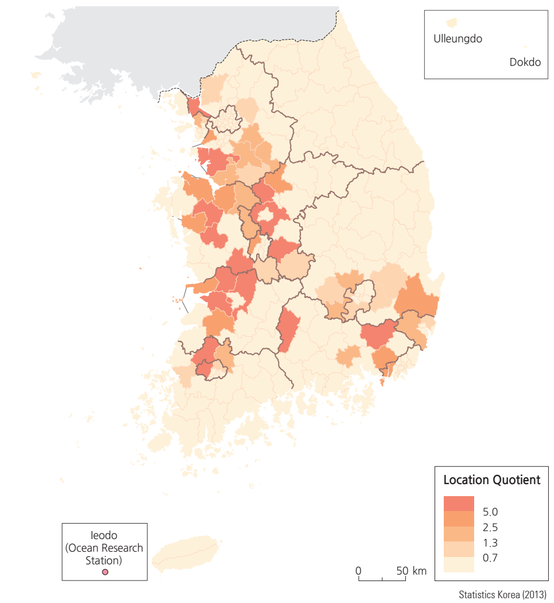
Manufacture of Engines for Motor Vehicles



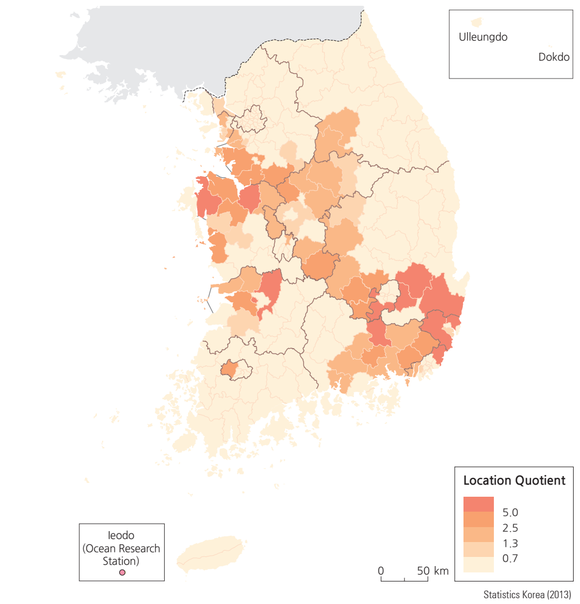
Manufacture of Motor Vehicles



Manufacture of Bodies for Motor Vehicles, Trailers, and Semitrailers



Manufacture of Parts and Accessories for Motor Vehicles and Engines



According to the 9th Korean Standard Industrial Classification, the automobile industry can be subdivided into manufacturers of motor vehicles, engines for motor vehicles, bodies for motor vehicles, trailers and semitrailers, and other parts and accessories for motor vehicles. The places with the highest location quotients for the automobile industry are Ulsan, Wanju-gun, Seosan, Dalseong-gun, Yeongcheon, and Asan, with prominent concentrations in Ulsan, Chungcheongnam-do, and Gyeongsangbuk-do. The locations with the highest number of manufacturing enterprises are Gyeonggi-do, Ulsan, Gyeongsangnam-do, and Chungcheongbuk-do. The locations with the highest production cost and value-added manufacturing rankings are Gyeonggi-do, Ulsan, Chungcheongnam-do, and Gyeongsangnam-do. In reviewing the subsections of the automobile industry, manufacturers of motor vehicles are concentrated in Bupyeong-gu in Incheon, Buk-gu in Ulsan, Hwaseong, Wanju-gun, Changwon, Gunsan, Asan, Seo-gu in Gwangju, and Gwangmyeong. The locations with the highest concentration of manufacturers of engines for motor vehicles are Changwon-si, Dalseong-gu in Daegu, Nam-gu in Ulsan, Pyeongtaek, Seogwipo in Jeju, and Asan. Manufacturers of motor vehicle and manufacturers of engines for motor vehicle are highly concentrated in the top five cities with a location quotient of 50 or above. A similar pattern can be found for manufacturers of engines for motor vehicles in the top five cities with a location quotient of 10 or above. For areas outside of these top five cities in each category, the location quotient was mostly less than 1.

Brief Interpretation of the Maps

The different sectors of the Automotive Industry (engines, body, parts, and assembly) in South Korea exhibit a clustered pattern quite similar to the Electronic Industry.

The clustered behavior of the Automotive and Electronic industries likely share some similar characteristics that contribute to the advantages of close proximity to related industries, but there are also some major differences in the industries clustering. Can you think of two or more important differences in the advantage of clustering in the automotive versus the electronics industries?

Distribution of Industrial Complexes

Industrial complexes play a key role in the national economy. They accounted for 62% of national manufacturing production, 79% of exports, and 42% of employment in 2010. Since the 1960s, Korea has promoted industrial complexes for firms to take advantage of infrastructure and agglomeration effects. They were once called "industrial parks," but the name was later changed to "industrial complexes" to reflect the shift to a knowledge-based economy in the 1990s.

Industrial complexes include national industrial complexes, local industrial complexes, and agricultural-industrial complexes. Local industrial complexes are further split into urban high-tech industrial complexes and general rural industrial complexes. These different types of industrial complexes reflect different developers and diverse purposes. National industrial complexes are designated by the Ministry of Land, Infrastructure and Transport. Local industrial complexes are designated by local governments. National industrial complexes frequently target developing specialized industrial fields, stimulating underdeveloped regions, or developing areas under multiple government jurisdictions. Local industrial complexes frequently aim at promoting regional dispersion of industries and boosting the local economy. Agricultural-industrial complexes focus on hosting the industries that may help local farmers or fishermen increase their incomes.

By the end of 2013, there were 1,033 industrial complexes. Among these, there were 41 national industrial complexes, 528 general industrial complexes, 11 urban high-tech industrial complexes, and 453 agricultural-industrial complexes.

The distribution of industrial complexes remains similar today. The total area of industrial complexes is 484.7 square kilometers with an occupancy rate of 93.9%, composed of 80,547 tenant companies. National industrial complexes are located mostly in the vicinity of the Greater Seoul Metropolitan Area and along the southeastern coastal region. Many of the general rural industrial complexes are located along the Gyeongbu Expressway which connects Seoul and Busan.

One urban high-tech industrial complex is in the development stage. Every industrial zone in Daejeon, Ulsan, Jeju, Namyangju, Gyeongsan, Suncheon, and Chuncheon hosts one or two urban high-tech industrial complexes. There is no agricultural-industrial complex in the Greater Seoul Metropolitan Area as these are mostly located in rural areas with large farming populations. Industrial complexes have contributed to creating jobs and developing domestic industries. They are geographically located adjacent to highways and harbors to maximize accessibility.

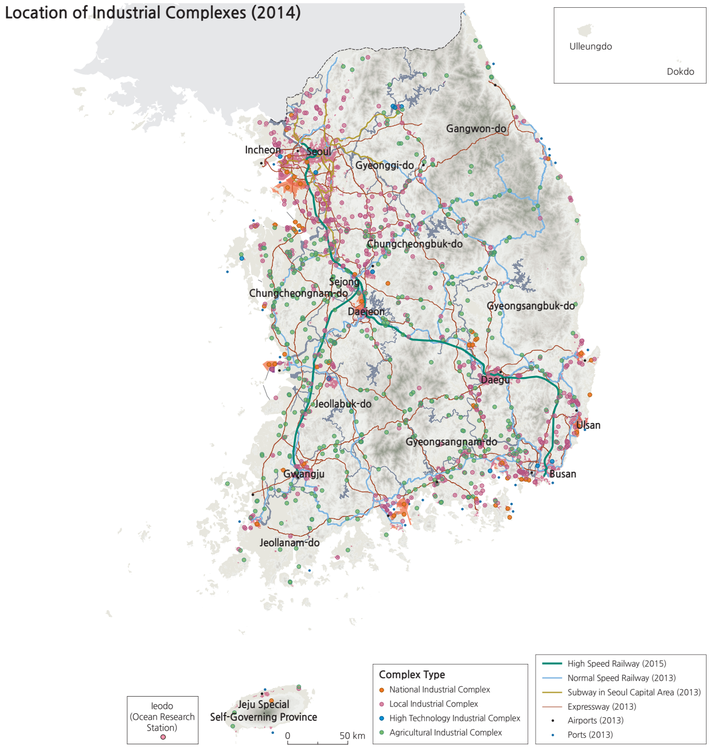
Brief Interpretation of the Maps

As noted above, the agricultural-industrial complexes are located well away from the Greater Seoul Metropolitan Area where traditional farming populations are well established. However, the majority of the newer industrial complexes are associated with Seoul; while the transportation links between Seoul and southeast South Korea are centered in the Busan area. The 2014 Location of Industrial Complexes map clearly shows the association of complexes with different types of major transportation routes. Most of the complexes not associated with major transportation are those classified as agricultural-industrial complexes.

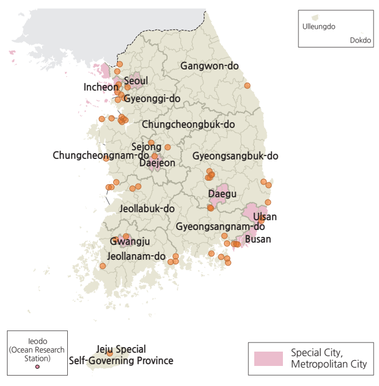
The lower four maps display the National, High Tech, Local and Agricultural Industrial complexes against the special and metropolitan cities sub-districts. These maps more clearly identify the number of complexes in the four categories, emphasizing the number in the locally funded category.

It would be expected that the agricultural-industrial complexes be associated with crop growing regions. Do you expect that different types of crop-associated agricultural-industrial complexes might have different affinities with transportation routes? What kind of crop processing would need railways? Would a different type of crop need an expressway association?

Location of Industrial Complexes (2014)

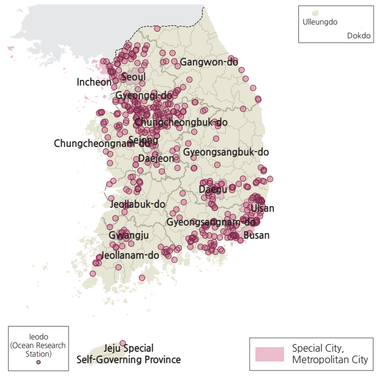


National Industrial Complex

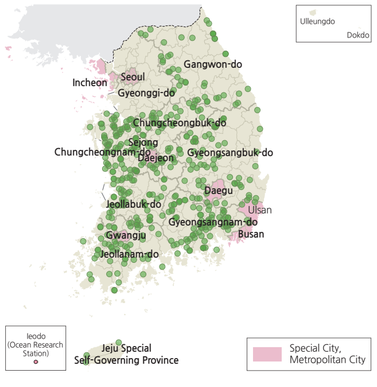


High Technology Industrial Complex

Local Industrial Complex

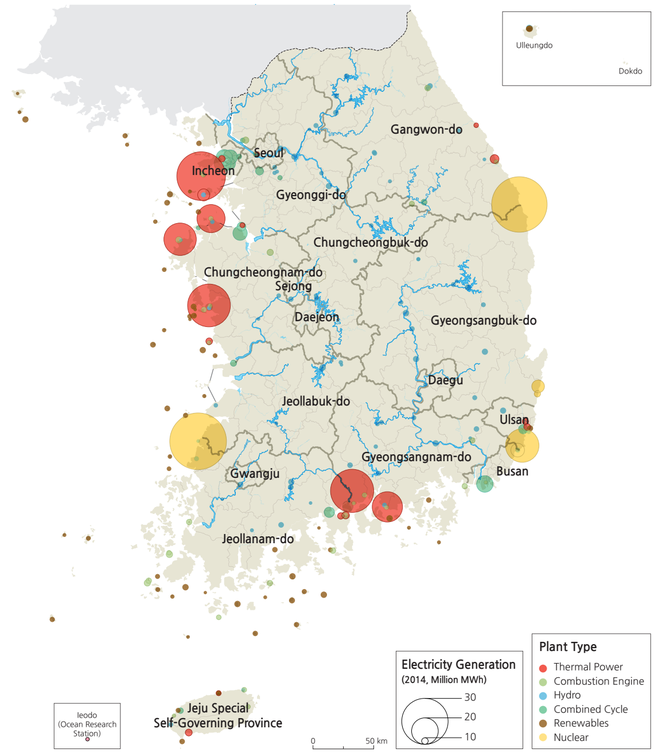


Agricultural Industrial Complex



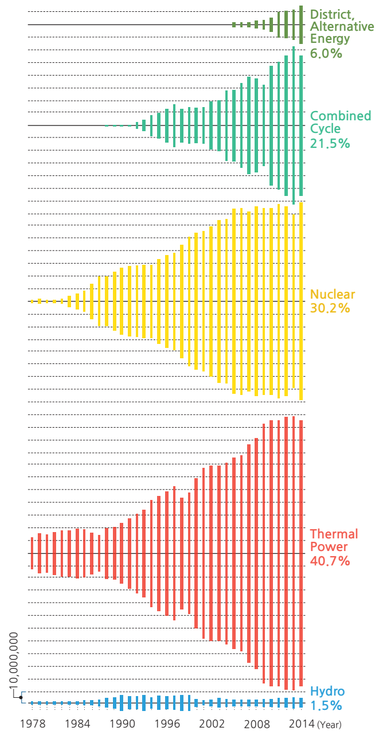
Energy

Power Plants-Locations, Types and Capacity (2014)



Korea Electronic Power Corporation (2015)

Electricity Generation Trend by Energy Source (1978-2014)



* Combustion Engine 0.1%

Korea Electronic Power Corporation (2015)

A wind farm on Jeju Island indicates the willingness of South Korea to invest in renewable energy resources.

To operate any kind of industry, a major requirement is an adequate supply of energy. Korea relies on imports for primary energy such as oil, liquefied natural gas, coal, and uranium all of which are then converted to final consumer energy such as natural gas, thermal energy, and electricity. The energy consumption (210 million toe [metric tons of oil equivalent]) in Korea in 2013 was at least five times more than 30 years ago. The dependency on imports also increased, from 75.0% in 1981 to 95.7% by 2013. The single most consumed energy source is oil (37.8%), and over 85% of oil is imported from the Middle East. Oil, bituminous coal (27.2% of consumption), and anthracite (2.1%) are converted into thermal energy and electricity. Liquefied natural gas (18.7% of consumption) is converted into natural gas and electricity. Meanwhile, nuclear energy and hydrologic/renewable energies account for 10.4% and 3.8% of the primary energy supply respectively. The industrial sector consumes the largest amount (62.3%) of energy, followed by the residential and the commercial sectors (17.8%), the transportation sector (17.8%), and the public sector (2.2%).

In Korea, electricity is generated using hydrologic power, gas, internal combustion, nuclear reaction, combined cycle power, and cogeneration/alternative energy. The total power generation capacity in Korea increased from 1.94 million MWh (Megawatt-hours) in 1961 to 542 million MWh by 2014 (an increase of about 300 times) according to the Korea Electric Power Corporation (2015). Internal combustion accounts for 38.9% (211 million MWh) of total electricity generation. Nuclear power ranks second at 28.8%, followed by combined cycle power (12.1%). Internal combustion systems increased from 0.002 million MWh in 1961 to 0.66 million MWh in 2014 (an increase of about 320 times). The second highest growth rate appears in the cogeneration/alternative energy sector, with an increase of 306 times from 0.01 million MWh in 2004 to 3.3 million MWh in 2014. Geographically, most electricity is generated along the western and southeastern coasts. The electric power grid delivers electricity from the large, coastal power plants to inland areas.

Brief Interpretation of the Map

As most everywhere in the world, energy resources and capability is in a state of flux because of developing technology. This is also true in South Korea. Because of the terrain in Korea, hydro-electric utilization has always been a small part of the energy equation and is unlikely to increase significantly. However, experiments are in progress in renewable resources such as tidal generation of electricity and utilizing natural geothermal resources for thermal energy. The bulk of energy needs are supplied by six thermal plants utilizing non-renewable sources, mostly derived from imported resources. There are also twenty-three nuclear power plants spatially concentrated in three regions: Busan, Gyeongsanbuk-do Province, and Jeollanam-do Province. Together, they currently produce just less than the same amount of energy created by the thermal facilities. Both of these types of facilities require large amounts of water for cooling purposes. All power plants in these two classes are located at or near the ocean to acquire the necessary cooling water. Much of the power from these two classes of plants is transmitted to inland locations; however, long distance electricity transmission involves the loss of power with distance and significant expense.

Because of the expense of transmitting power, some needs must be satisfied by other means especially in island and other isolated communities. In these situations, smaller combustion and alternative energy sources fill an important gap for industrial and residential needs.

As population and manufacturing continues to grow in South Korea, the needs for increasing energy sources will also expand. Discuss the advantages and disadvantages in the thermal and nuclear sectors of energy production. Energy needs are built on reliable continuous supplies. Recent United States hurricanes have focused attention on the infrastructure of energy. Typhoons in Korea are not as large a threat as elsewhere. What are the other natural and human generated events that can threaten the energy infrastructure?

Service Industries

Since the 1960s, the Korean industrial structure has changed from traditional agricultural-, forestry-, and livestock-based primary industries to manufacturing-based secondary industries led by the government's manufacturing promotion policies. But manufacturing reached its peak in the 1990s and in the mid-2010s service industries are growing continuously and have become the main foundation of the Korean economy.

Service industries provide non-material products including commerce, food and lodging services, tourism, transportation, communication, finance, real estate, health and medical care, and so forth. Unlike manufacturing, the final products of service industries are non-material.

The spectrum of service industries is almost limitless as it includes all types of economic activities that satisfy human desires apart from material goods. The activities are diverse and vary from simple labor to complex knowledge dissemination, and from satisfying individual needs to assisting with various other production activities. Moreover, as the scale of the economy gets larger and the standard of living improves, the demand for various service sectors becomes more diverse and rapidly-changing. The categories of service industries have expanded and the activities have become more complex. Producer services, those services assisting a business in conducting its operations, have gained more attention in recent years and play more important roles as they produce new jobs by counterbalancing the job losses that were created by the declining manufacturing sector. Producer services are also important because they provide high technology jobs for other industrial activities.

Such vast and complex industrial service categories can be classified in a myriad of ways. They include service industries that handle the distribution of already produced goods such as in retailing and wholesaling; transportation and communication; and finance, insurance, and real estate that manages wealth and finance. Service industries were also extended to include other personal services that satisfy individual service activities as well as business services that help other producer services, and public services that help individuals and the public to participate in economic activities. A more common classification of service industries is the division by groups that demand services (i.e., consumer services and business services). The categories of consumer services include retail, lodging, leisure and tourism industries, personal services, and public services. Producer services include transportation, warehousing, financing, insurance, real estate, research and development, and advertising.

According to the KSIC (Korean Standard Industry Code) classification by the Bureau of Statistics, the service industries of Korea can be divided into 13 classifications: wholesale trade and retail trade services; transportation services; lodging and food industries; publication, visual production, broadcasting communication, information services; finance, insurance, real estate, and leasing properties services; professional, scientific, and technological skills services; social support services; public administration, national defense, and social services administration services; educational services; health care and social welfare services; art, sports, and entertainment related services; organizations and associations services; and repair and other personal services.

Service industries have continued to grow, even today. In 2013, the number of service industry business establishments had reached 3.2 million and accounted for 86.6% of the total number of industrial establishments. There were 14.2 million service workers, 74.1% of the total number of employees. The total sales for service industries were about 2 trillion US dollars, 51.2 % of the total industrial sales. The service industry has continued its steady growth annually with the exception of the economic crisis of 1997.

When comparing service industry employment among the greater metropolitan areas and provinces, the number of service employees in Seoul is 3.93 million, or 28.7% of the total number of service employees. Gyeonggi-do had 2.73 million (19.9%) and Busan had 0.99 million (7.2%). About half of the service workers are concentrated in the Greater Seoul Metropolitan Area (Seoul and Gyeonggi-do), which is similar to the geographic distribution of the population. The average number of employees per service establishment in 2013 was 4.5 persons, indicating that small businesses are the norm. In terms of the number of employees by the size of establishment, small businesses with fewer than 10 employees accounted for about 46.9%; establishments with 10-299 employees accounted for 41.1 %, indicating that most service establishments are small- and medium-sized businesses.

Brief Interpretation of Map and Graphics

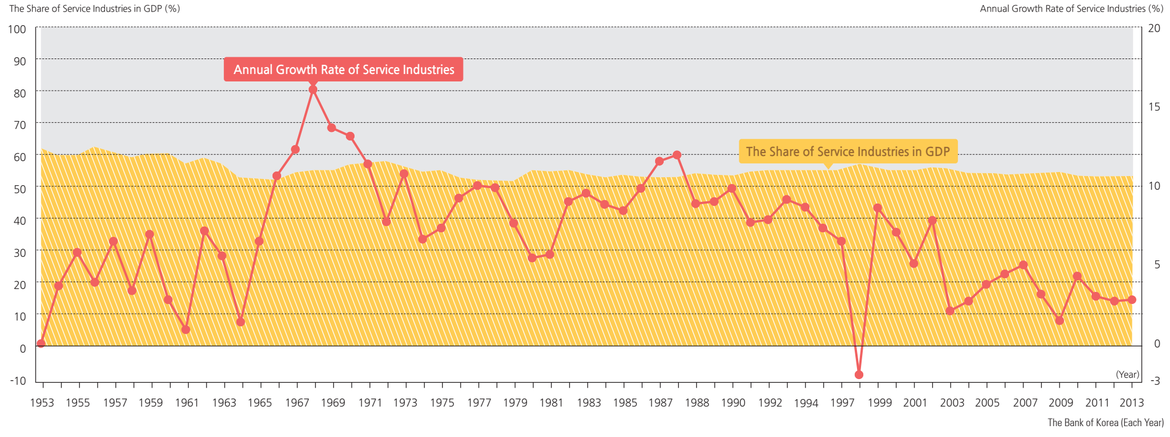
The statistics relating to the growth and status of Service Industries in South Korea show some very interesting contrasts and changes. The long central graph plots the percentage annual growth rate against the percentage share of services industries in the annual Gross Domestic Product. The graph shows a pattern of spikes and valleys throughout the period from 1953 until 2013. There was a large spike in 1968 and then a general decrease until the present. However, the percentage of GDP hovered between approximately 11 or 12 percent for the whole period indicating a continuous growth of the value of the service sector since the GDP has grown throughout that period.

The lower right graph shows the growth of enterprises plotted against the growth of employees in the period from 1997 to 2013. This graph shows a slowing growth of the number of enterprises in the period but an increasing growth in the number of employees. It reflects an increasing rate of employment for existing enterprises which also indicates increasing levels of business in current firms.

The map shows that there is a degree of stability in the Service sector. Over 70% of the firms nationwide are of the very small to medium-sized category and over 40% of the enterprises are classed as “Petty” or very-small with less than four employees. This indicates that while the Service sector is very large, the largest sector in the country, there is a continuous potential for the establishment of new enterprises as part of the normal attrition of older small firms.

There are relatively few high value-added employee sub-districts in South Korea, with most concentrated on the northern-most areas along the DMZ. What factors might be assumed to be a part of these high value-added per employee areas? The Seoul Metropolitan shows the largest number of employees in small and medium-sized enterprises, while Busan has many fewer employees in these categories. What might account for these differences in these relatively large urban areas?

Growth of Service Industries (1953-2013)

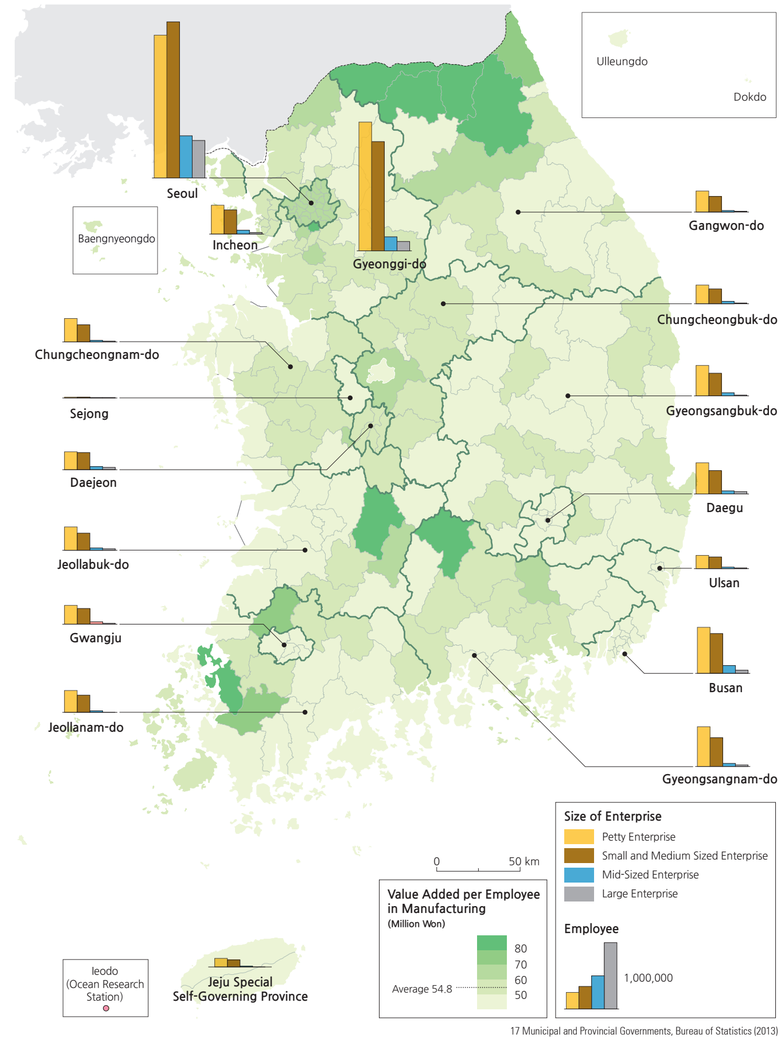


The Bank of Korea (Each Year)

Classification of Service Industries in the Korean Standard Industry Code

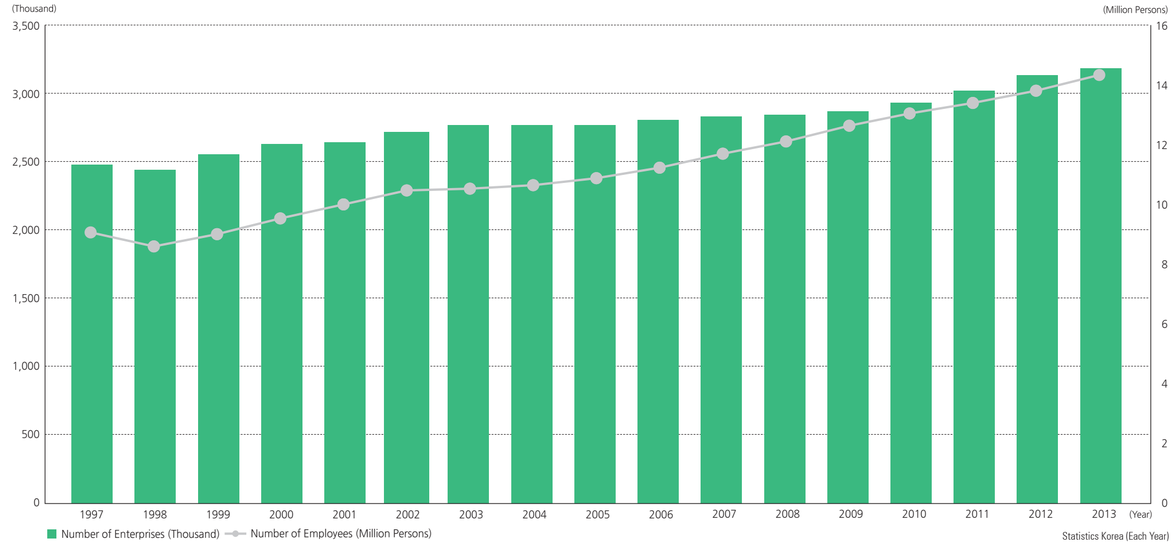
1st Class	Wholesale Trade and Retail Trade Services	Transportation Services	Lodging and Food Industries	Publication, Visual Production, Broadcasting Communication, Information Services	Finance, Insurance Services	Real Estate, and Leasing Properties Services	Professional, Scientific, and Technological Skills Services	Social Support Service	Public Administration, National Defense Services, and Social Services Administration Services	Educational Services	Health Care and Social Welfare Services	Art, Sports, and Entertainment Related Services	Organizations and Associations Services, Repair Services, and Other Personal Services
	· Car And Components · Wholesale Trade · Retail Trade	· Transportation And Pipeline · Maritime Transportation · Airway Transportation · Warehousing Transportation	· Lodging Industry · Food Industry	· Publication · Visual Production · Broadcasting · Communication · Computer Programming, System Integration · Infomation Services	· Finance · Insurance	· Real Estate · Leasing Properties Services	· R&D · Professional Services · Construction · Scientific, And Technological Skills Services	· Landscaping Services · Social Support Services	· Public Administration, National Defense Services · Social Services · Administration Services	· Educational Services	· Health Care and Social Welfare Services	· Art And Leisure · Sports, and Entertainment Related Services	· Organizations and Associations Services · Repair Services · Other Personal Services

Enterprises and Employees in Service Industries (2013)



17 Municipal and Provincial Governments, Bureau of Statistics (2013)

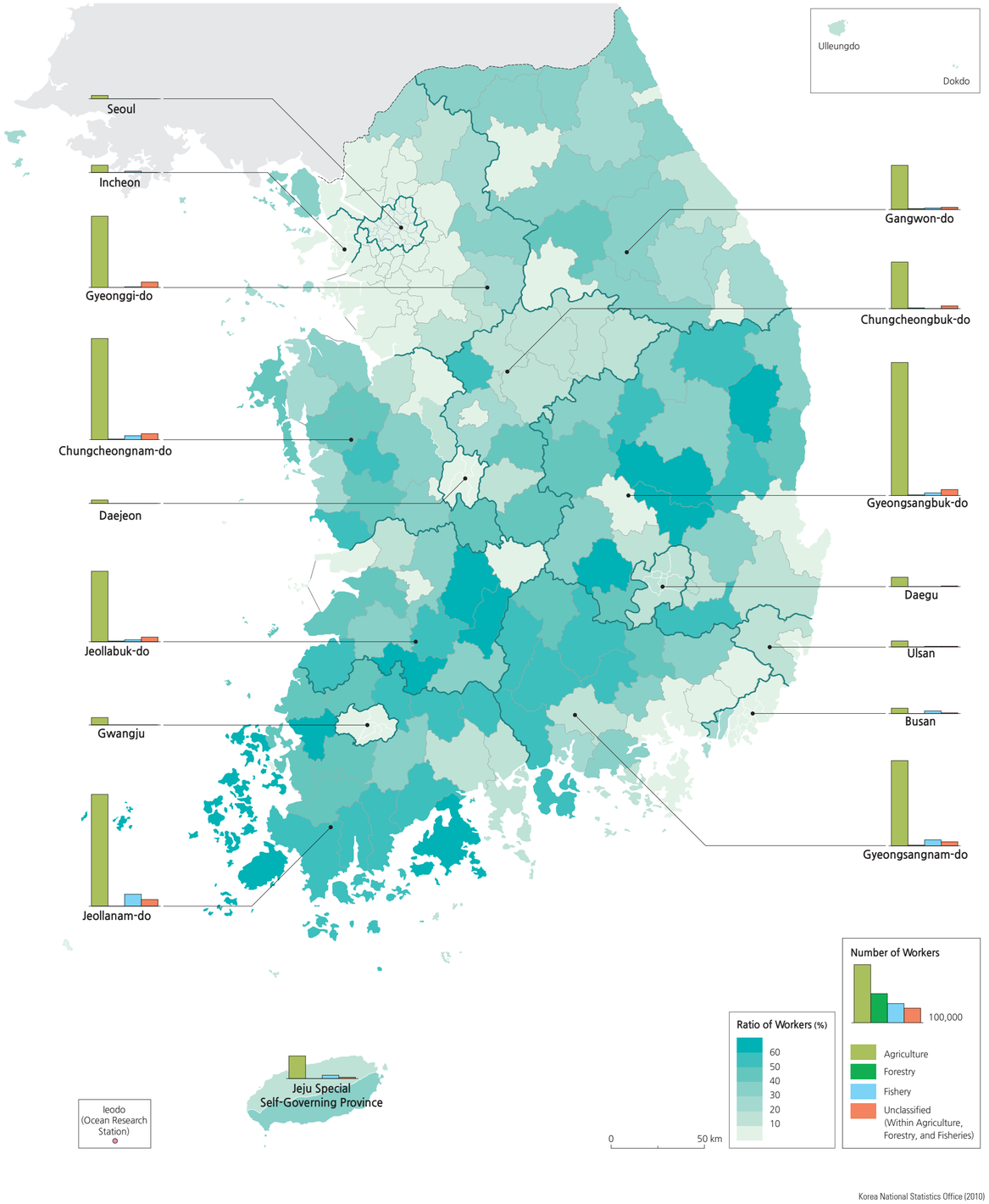
Growth of Enterprises and Employees in Service Industries



Statistics Korea (Each Year)

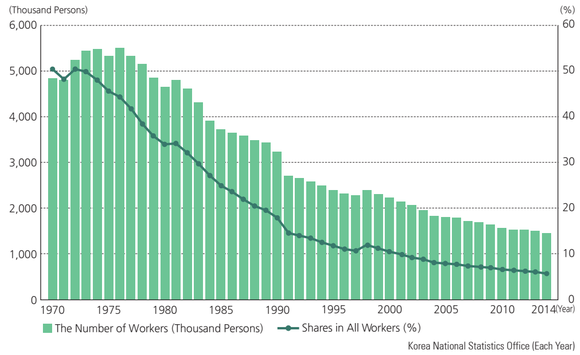
Primary Industries

Ratio of Workers Engaged in Agriculture, Forestry, and Fisheries (2010)



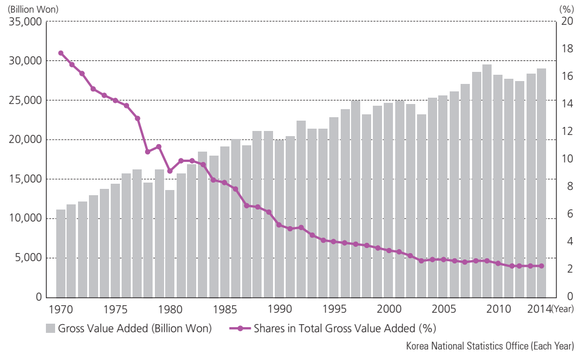
Korea National Statistics Office (2010)

Number of Workers in Agriculture, Forestry, and Fisheries (1970-2014)



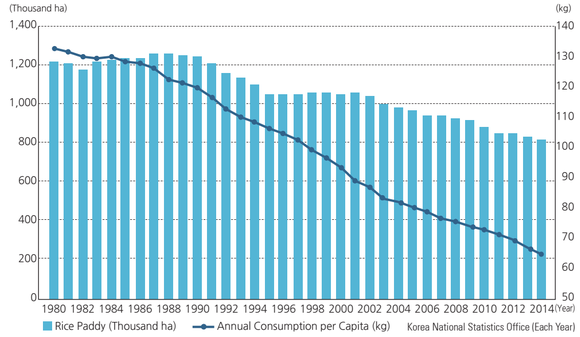
Korea National Statistics Office (Each Year)

Gross Value Added of Agriculture, Forestry, and Fisheries (1970-2014)



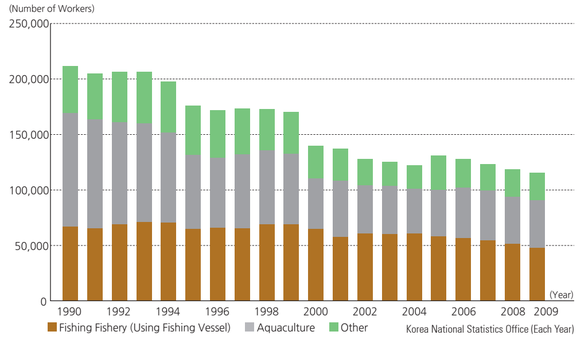
Korea National Statistics Office (Each Year)

Rice Paddy and Annual Consumption per Capita (1980-2014)



Korea National Statistics Office (Each Year)

Number of Workers by Type of Fishery: Marine Fishery (1990-2009)



Korea National Statistics Office (Each Year)

As the Korean economy has become more industrialized, the primary industries (agriculture, forestry, and fisheries) overall have gradually declined, and the share of the primary industries in the national economy has gone down drastically. The proportion of employment in agriculture, forestry, and fisheries to the total employment was only 5.7% in 2014, falling from just below 50% in the 1970s to less than 10% in 2000. In 1970, the share of agriculture, forestry, and fisheries to gross value added was 17.7%, and then dropped to 5% by the early 1990s, and below 3% by the early 2000s.

The decline and structural changes in the primary industries did not occur uniformly across regions in Korea. Most rural areas did not have enough local jobs to absorb the surplus agricultural labor force. Therefore, there was mass out-migration to the cities while in-migration to rural areas was negligible. However, there are still some areas that maintain a high proportion of employment in the primary industries.

The age of employees in agriculture, forestry, and fisheries has shifted significantly since the 1980s. In 1980, most (32.1%) of the agriculture, forestry and fisheries workers were young (under age 35), while only 5.7% were over age 65. But in 2010, the age distribution was reversed, at 3.5% and 41.6%, respectively. Aging of the farming population is expected to intensify for some time yet. But new changes seem to be appearing: though engaged in urban non-agricultural sectors previously, some people (about 10,000 per year) have begun to migrate to rural areas to farm. Among them, over 70% are younger than age 50, and over one third of them are younger than age 40. As of now, however, the implications of this new change in migration for the demographic structure of the agricultural sector in the future are hard to predict.

The most prominent trend in Korean agricultural production has been the decline in rice production. The rice cultivation area was about 1,220,000 hectares (3,014,686 acres) in 1980, but declined steadily to 814,000 hectares (2,011,438 acres) by 2014, a reduction of about one-third (or 406,000 hectares or 1,003,248 acres) in 34 years. Nevertheless, the per capita annual rice consumption was greatly reduced during the same period; rice has become rather seriously oversupplied. Moreover, the amount of rice imports by the MMA (Minimum Market Access) based on the World Trade Organization (WTO) agreement, has increased annually, which creates an added burden to the rice production oversupply problem. Eventually, many rice growers either reduce their rice crop areas or switch to other crops due to a lack of profit.

The share of forestry to the national economy has traditionally been low. From 1990 to the present, the annual forestry production value remained between 0.2 and 0.5% of the Gross National Product (GNP). Forestry products that used to be gathered from the forest are cultivated directly now. Forestry households, whose main source of income is forestry, have increased slightly compared to the past. Even so, forestry still remains only a very small part of the national economy.

The Korean fishing industry has experienced a lot of uncertainties due to the depletion of fishing resources and imported fishing products over the last few decades. The decline is more prominent in coastal and deep-sea fishing, which have traditionally been important in the Korean fishing industry. Only after 2000, with a gradual increase in aquaculture and inland fisheries, has the total fishing industry output and value of production slightly improved. In recent years, however, even the aquaculture industry has begun to decline. This overall depression in the fishing industry has caused a persistent decline in the fishing industry population. The number of fishermen employed in offshore or coastal fishing by 2010 was reduced to almost half, while inland fishing decreased to 36%. This trend is expected to continue in the future because there is hardly any influx of new fishing industry workers, and current fishing industry workers are aging.

Brief Interpretation of Map and Graphs

The large map on the left page depicts the ratio of workers in agriculture, forestry and fisheries in 2010. As would be expected, most of the metropolitan and province sub-districts with the highest ratios are outside of the major urban areas. As the text above indicates, the mining component of the natural resource category in the industrial economy has almost disappeared.

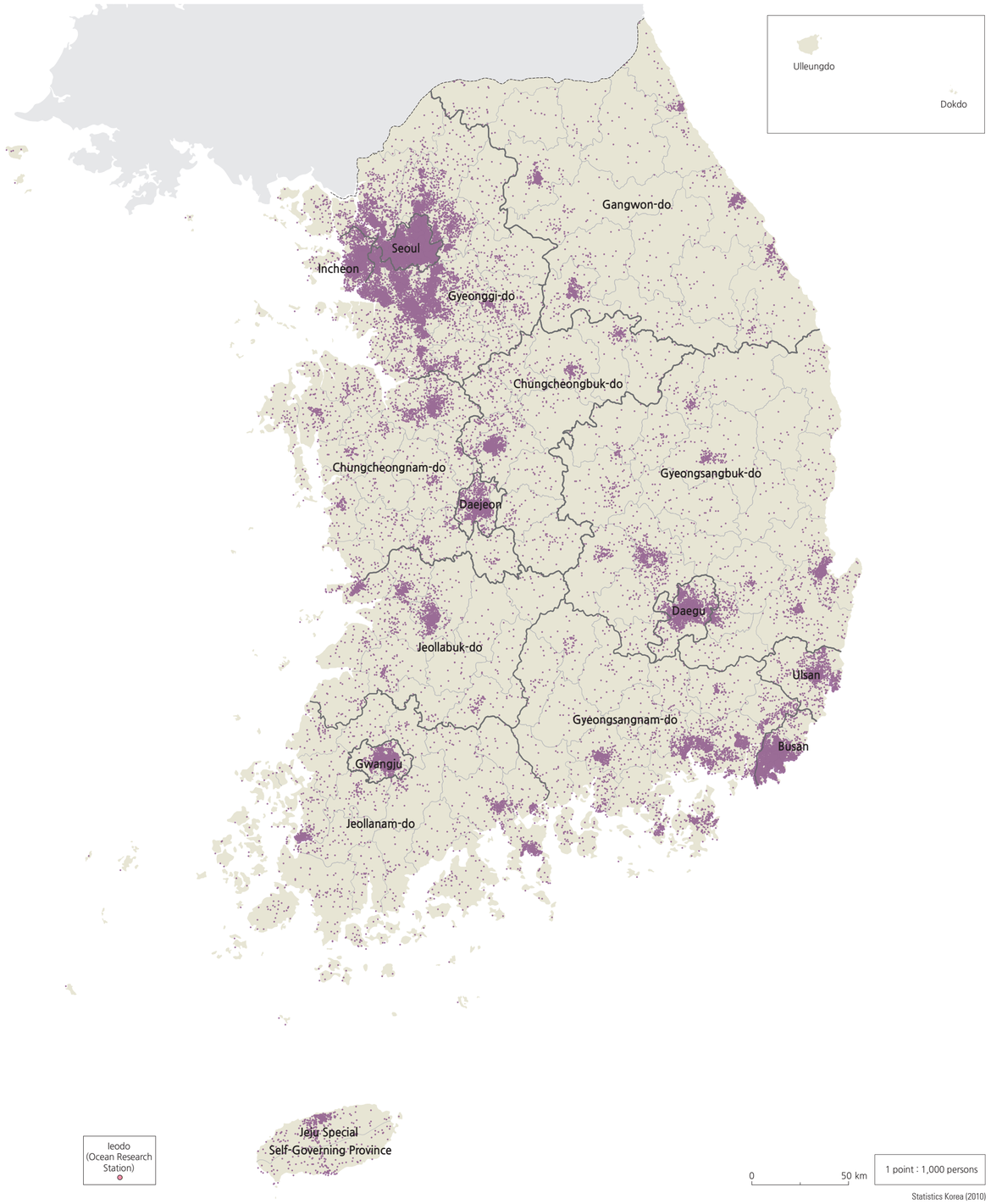
The four graphs above display some interesting contrasts. The graph of the Number of Workers in Agriculture, Forestry and Fisheries from 1970 to 2014 exhibits an expected pattern. As the number of workers has declined in this sector, the percentage share of the worker has declined proportionally. The graph of the Gross Value Added in Agriculture, Forestry and Fisheries when compared to the Share of Total Gross Value Added provides a clearer view of the role this sector plays in the whole economy. The Share of the Total Gross Value-Added is steadily decreasing– illustrating the natural resource sector is gradually taking a smaller role in the economy as a whole, while the manufacturing and service sectors are increasing. However the value of the sector is gradually increasing illustrating the increase of the cost or value of these products.

The area in rice paddy land has decreased by about 30% over the 44 year period, as shown on the graph, but the Per Capita Rice consumption has decreased by almost 65% indicating an increase in exported rice over the same time period. This factor may signal an increasing export market in agricultural products in general. The graph presenting the number of workers by type of fishery also displays some interesting changes. The three categories of type of fishery are fishing vessel sources, aquaculture and other (fresh water sources and shellfish). The sector relying on fishing vessels only slightly decreased from 1990 to 2009. In the same period, the aquaculture component shrank to only about a 50% contribution in 2009, compared to what it was in 1990 when aquaculture was about 1.8 times the vessel component. The “other” component in 2009 was about only 40% of the total in 1990. With the three categories combined, the fisheries industry in 2009 is only about 45% of the amount it was in 1990.

With the fisheries only approximately 45% of the amount it was in 1990, can you assume that fish products consumption has decreased accordingly? The natural resources sector of the South Korean economy is decreasing in general when compared to the other industrial and services sector. However, lumber for construction, fish for consumption, and agricultural food products cannot be assumed to be decreasing with a growing population. Therefore these increasing needs of the nation must be met by imports. Thinking about the nature of these three sectors, discuss the different types of import methods which are most appropriate for each sector and relative costs. If the relatively low fuel costs at the present were to increase drastically over the next year, what type of natural resources products would be expected to reflect the highest cost increases?

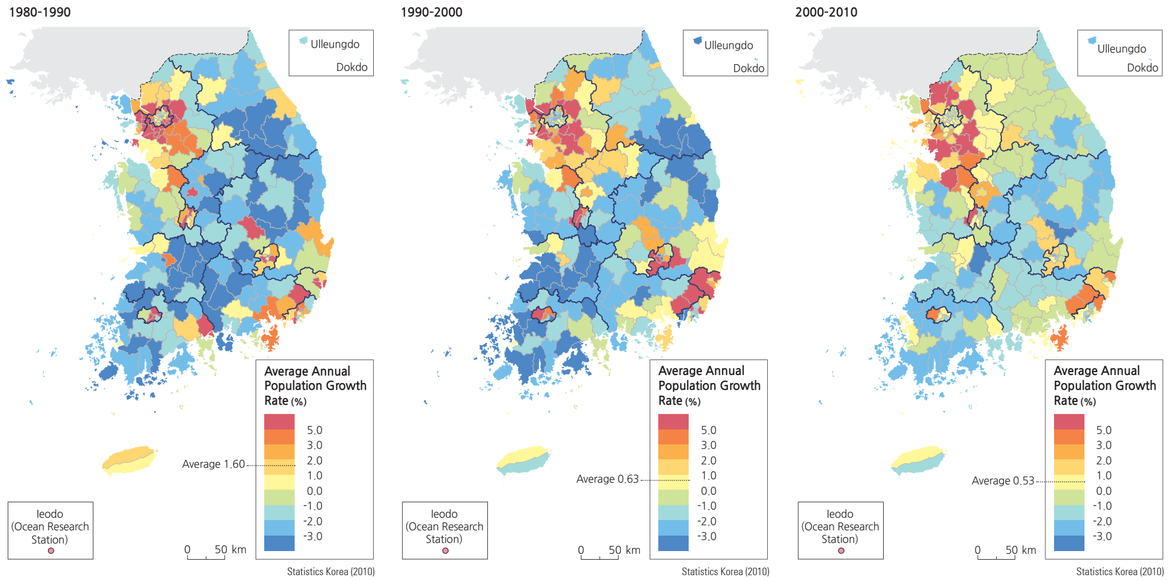
Population

Population Distribution (2010)



Statistics Korea (2010)

Population Growth Rates



Statistics Korea (2010)

The population of a country or a place can be studied in several different ways—each providing valuable information as well as foundations to make projections on increasing or decreasing trends. We can study the distribution of a population (where people are located); the density of the population; the net change that involves natural increases (births), decreases (deaths), and migrations (in and out of an area); the structure or composition such as age pyramids that show the percentage or absolute numbers of each age group; the ratio between male and female; the fertility rate; the labor force; the aging population; and many other social, economic, housing, and health characteristics. Understanding the Korean population picture will greatly help the government assign resources appropriately, make better spatial plans, and improve on living environments.

Geographically, the population is concentrated in the Greater Seoul Metropolitan Area. In 1949, the Greater Seoul Metropolitan Area had 21% (4.2 million) of the total population. By 2010, this increased to 49% (23.8 million). The population percentages in all other regions declined during this period. Particularly, the Honam region (which is comprised of Jeollabuk-do and Jeollanam-do Provinces in southwest Korea), with a shrinking population, experienced the highest drop. From 1949 to 2010, the population of Korea grew by 28.4 million to 48.4 million. The Greater Seoul Metropolitan area gained approximately 19.7 million, followed by 6.4 million in the Yeongnam area (which is comprised of Gyeongsangbuk-do and Gyeongsangnam-do Provinces in southeast Korea). These two areas account for about 92% of the total population increase during this period. This population growth also parallels the economic growth for these areas. Resources such as capital, technology, and labor have been concentrated in these two regions during the period of the fastest economic development of Korea.

The majority (over 90%) of the Korean population lives in urban areas. As of 2010, there were many neighborhoods in urban areas with population densities exceeding 10,000 persons per square kilometer, particularly in the Greater Seoul Metropolitan Area and regional metropolitan cities such as Busan, Daegu, and Gwangju.

Depending on how population data are collected, there are multiple population statistics such as resident registration population, estimated population, and the census population. The resident registration population uses the household registration data, and it is usually the largest of the three statistics. Frequently, an individual's actual residence is different from his or her registered residence for a variety of reasons; to help address this issue the population census is conducted every five years. In between the official censuses, Statistics Korea (the Korean census bureau) publishes an estimated population every year to provide information between censuses. Because the population census cannot attain a 100% response rate, the resident registration population is considered the highest total, followed by estimated population and census population.

Population density in Korea increased from approximately 210 persons per square kilometer in 1949 to 470 persons per square kilometer in 2010. Except for Bangladesh and some city states, Korea has one of the highest population densities in the world. Until 1966, both the Greater Seoul Metropolitan Area and the Honam area had higher population densities than the national average; by the mid-2010s only the Greater Seoul Metropolitan Area exceeded the national average. The population density of the Greater Seoul Metropolitan Area increased from approximately 350 persons per square kilometer in 1949 to 1,990 persons per square kilometer in 2010. It is one of the highest in the world, except for some city states such as Monaco (18,500 persons per square kilometer) or Singapore (7,230 persons per square kilometer). Reflecting this trend, the geographic center of Korean population continues to move towards the Greater Seoul Metropolitan Area.

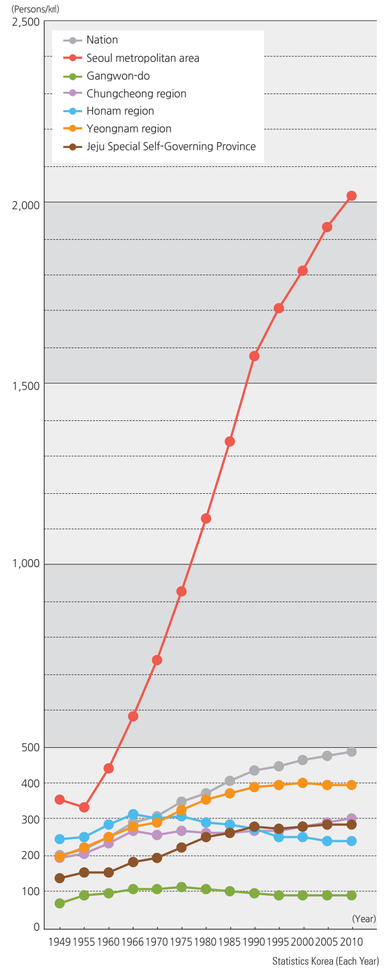
Brief Interpretation of the Maps

The Population Distribution (2010) map is a dot map with each dot representing 1,000 persons. It distinctly shows that the population is clustered around large and small urban areas. Comparing this map with transportation network maps of Korea (pages 74-75), one can readily see the correlation of population distribution along the major branches of the transportation infrastructure. The government has invested heavily in industrial and economic centers and linking them with an efficient transportation network; these centers provide jobs as well as social services which attract population. Thus, the population distribution pattern correlates with the patterns of industrial and economic centers. Much smaller populations do exist in rural areas, as evidenced by the sparse and scattered dots on the map.

The three maps that depict population growth during three decades (1980-1990, 1990-2000, and 2000-2010) show the changes in growth rates. All three maps illustrate declining growth rates in the -si/-gun/-gu level across the northeast to southwest axis while rates increase generally in urban centers. On closer examination, Seoul and Busan are shown to lose population to the surrounding respective suburbs. The decline rate is lower in the rural areas for the 2000-2010 periods because much of the area had already been depopulated in earlier time periods.

Given that most of the industrial and economic centers have long been entrenched in the current locations, do you expect to see great spatial changes in the population in Korea? If so, how would these changes come about? If not, how would factors such as natural increase or decrease, migration, or changes in fertility rates affect population spatial patterns?

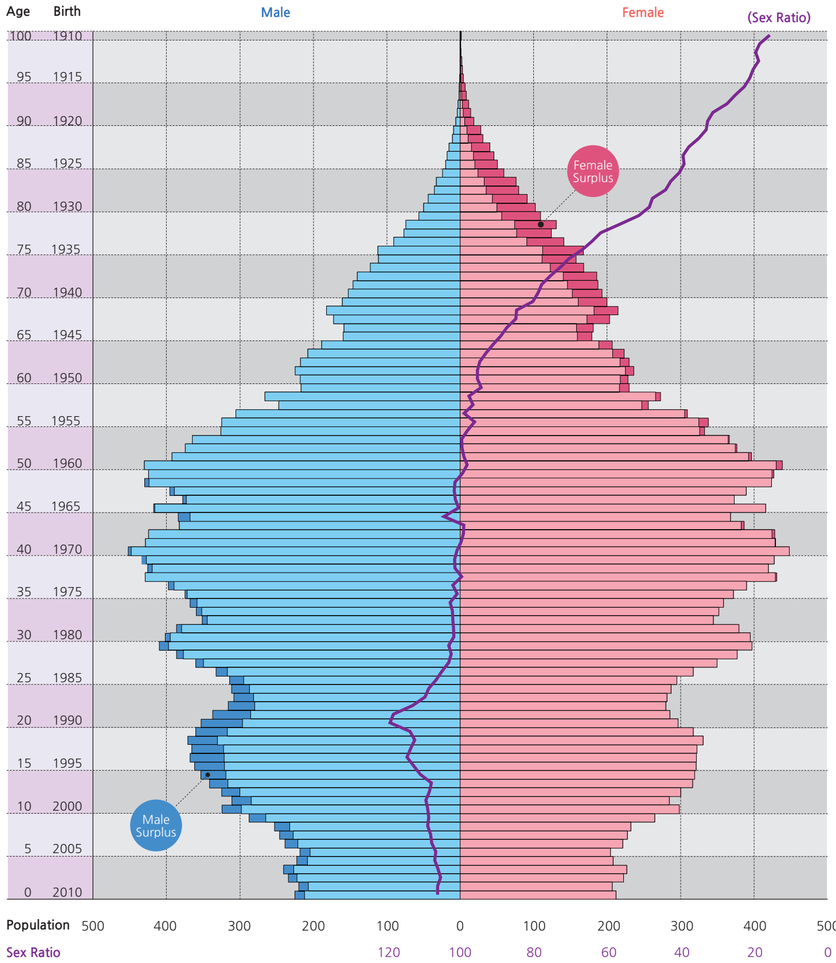
Population Density by Region (1949-2010)



Statistics Korea (Each Year)

Population Structure and Projections

Population Pyramid of Korea (2010)



◄◄ 1. Temporal Declination Before and After the Korean Independence in 1945 (1943-1946)

◄◄ 2. Temporal Declination During the Korean War (1950-1953)

◄◄ 3. Baby Boom Generation(1955-1963)

◄◄ 4. Effects of ① (1964-1967)

◄◄ 5. Effects of ② (1976-1978)

◄◄ 6. Offspring of the Baby Boomer Generation

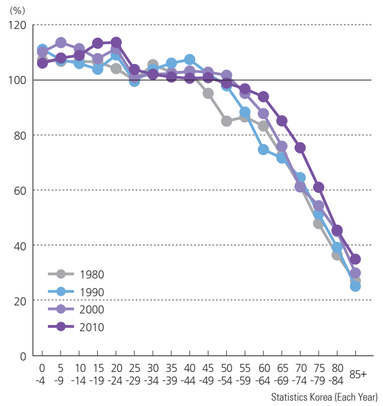
◄◄ 7. Effects of ④ and the Strong Birth Control Policies

◄◄ 8. Abolition of the Strong Birth Control Policies

◄◄ 9. Delay and Evasion of Marriage and Childbirth

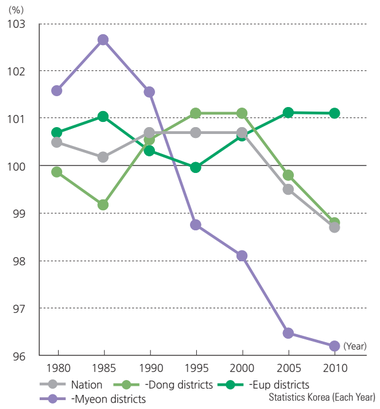
Statistics Korea (2010)

Sex Ratios by Ages



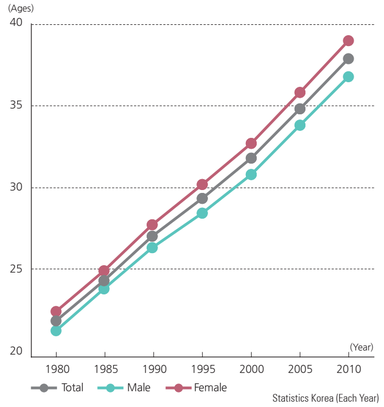
Statistics Korea (Each Year)

Sex Ratios of -Dong/-Eup/-Myeon Districts



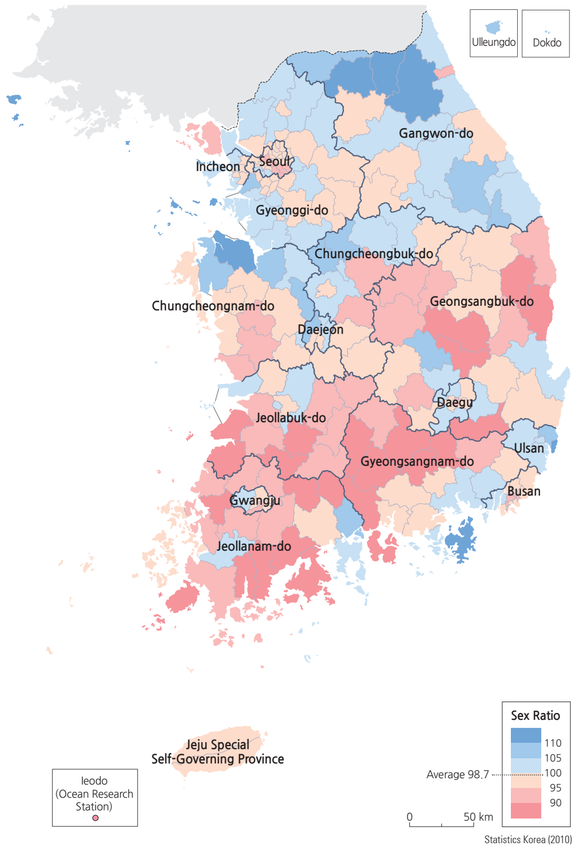
Statistics Korea (Each Year)

Median Age by Gender



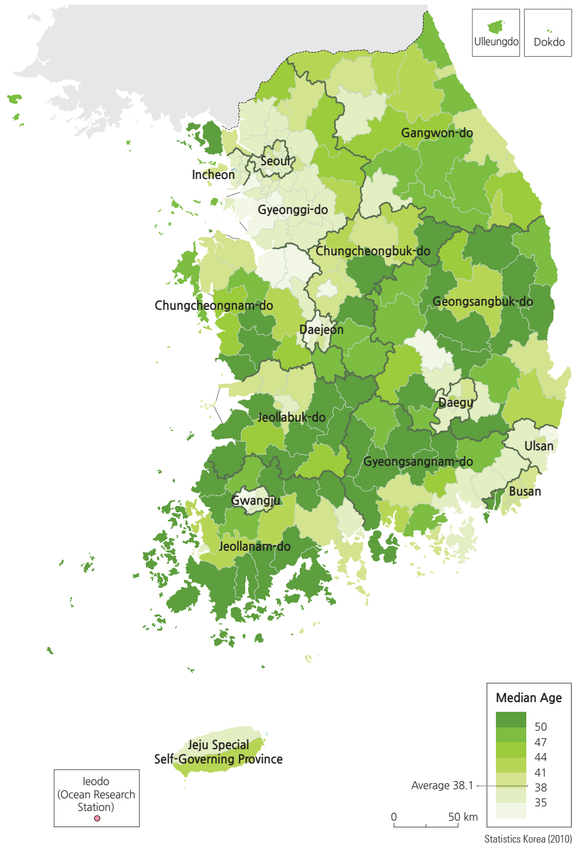
Statistics Korea (Each Year)

Sex Ratio (2010)



Statistics Korea (2010)

Median Age (2010)



Statistics Korea (2010)

The 2010 population pyramid shows the population structure of South Korea by gender and age. The newborn population temporarily declined during the Korean independence movement in 1945 and the Korean War (1950–1953). The baby boom generation (born between 1955 and 1963) has played a key role in determining the population structure. The birth rate declined slightly between 1964 and 1967 because of a relatively small population of childbearing age individuals due to the unstable period of Korean independence. The birth rate declined again between 1976 and 1978 because of a relatively small population of childbearing age persons born during the Korean War.

Birth rates increased in the early 1980s as the baby boomer generation began having children. The population born between 1985 and 1990 decreased substantially because they were the offspring of the generation born between 1964 and 1967, and strong birth control policies were enforced during this period. Although the number of new births increased slightly after governmental birth control policies were abolished, birth rates have decreased due to people waiting longer to marry and choosing not to have children.

The total population of Korea was approximately 49.4 million in 2010. If the current trend continues, it is expected to peak at approximately 52.2 million in 2030, and decline thereafter. Estimating future trends in population growth or decline is normally studied by the fertility rate of a country, which records the number of live births per thousand women of standard child-bearing age between 15 and 44. The Korean government has encouraged people to have children since 2000, but the fertility rate has fallen to one of the lowest in the world due to social and economic circumstances. Korea faces significant challenges associated with a stagnant or declining future population that can ultimately reduce the labor force age groups in the future.

The sex ratio (number of males per 100 females) in 2010 of the total Korean population is 98.7, indicating that females outnumber males overall. The sex ratio (i.e., number of males per 100 females) indicates that males outnumber females in the population under 35 years old, while females outnumber males in the population over 60 years old. The sex ratio map displays that the areas with lower ratios (i.e., the areas with more females) are often -gun districts that are losing population.

On the other hand, the high sex ratio districts appear in the areas where male workers are in demand, such as heavy manufacturing and chemical industries in Ulsan, Geoje (Gyeongsangnam-do), Gwangyang (Jeollanam-do), and the northern part of Chungcheongnam-do, where many development projects have taken place. The military border regions in Gangwon-do also show high sex ratios. In the age group including the early 30s, the sex ratio is above 100 (i.e., more males), but it drops below 100 in the population older than 50. The sex ratio drops further in the elderly group.

The median age has risen continuously due to increases in average life expectancy. The median age map verifies the sex ratio map, illustrating that the median age is relatively lower in metropolitan areas and higher in gun districts.

Brief Interpretation of the Pyramid and the Maps

The population pyramid is a very useful graphic for analyzing the structure of a population. The left side of the pyramid (blue bars) represents tallies of male population by age groups while the right side represents females. The bottom bar represents infants between birth and one year old, the bar above that represents 1 to 2 year olds, and so on. In this particular pyramid depicting the population of Korea in 2010, one can immediately notice that the pyramid has a very narrow base (birth to 9 year olds) indicating that the birth rate has greatly declined compared to other age groups. There are bulges for the 28-32 age groups, meaning that the years when they were born (1978–1982), there were large numbers of births. The comments on the right side of the pyramid with arrows pointing to each specific age group indicate the causes and effects that may explain the size of population for that year, perhaps due to government regulations or perhaps due to war or other historical events. Demographers and geographers routinely use population pyramids to analyze the structure of a population.

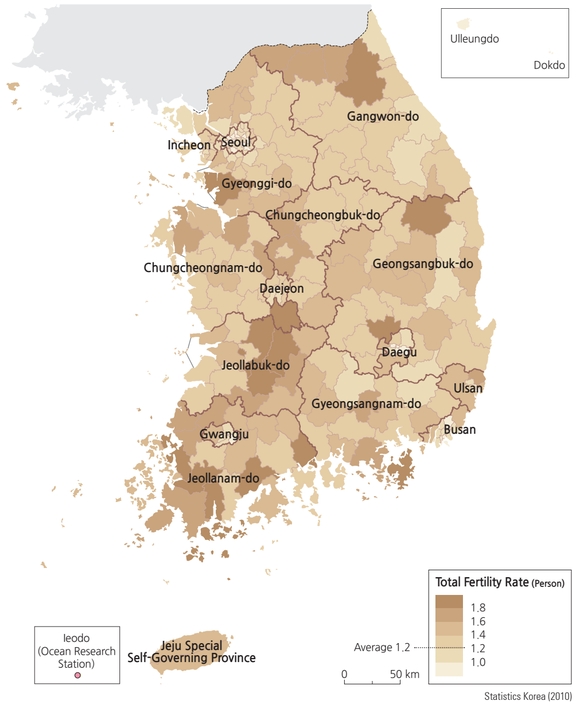
The 2010 Sex Ratio map displays the geographic pattern that highlight the spatial distribution of places that have more males or more females. The blue colors indicate places of more males and the beige and pink colors indicate places where females outnumber males. Once again, we see a prominent northeast to southwest band (primarily rural areas) that stands out to represent more female population.

The 2010 Median Age map illustrates the distribution of people of ages below or above the national average of 38.1 years old. The two shades of the lightest green colors represent young people who are under the national average of 38.1 years while the rest of the darker shades of green represent people older than the national average. In general, young people tend to be urban dwellers, concentrated in cities of various sizes while older people live in the northeast-southwest band.

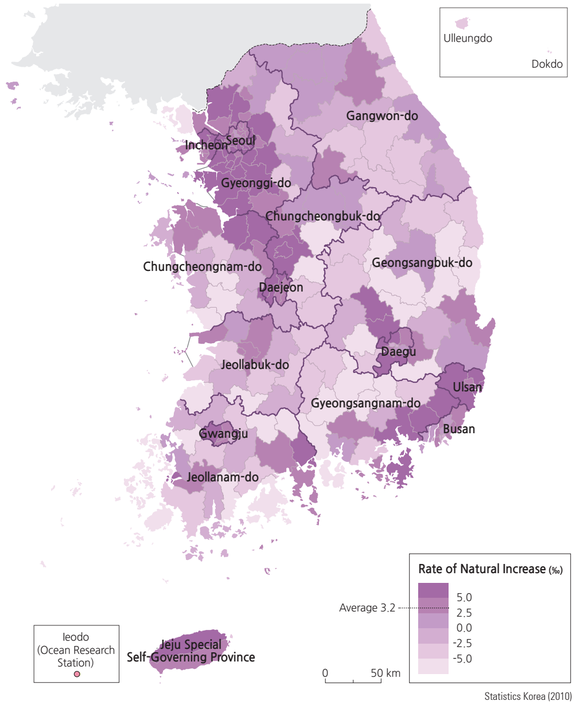
The information displayed on these two maps suggests that urban populations are younger and have a higher number of males. Suggest some reasons why this is the case and support your reasons with information shown in the population pyramid by looking into work-force age groups, school-age groups, and sex-ratio comparisons.

Vital Statistics

Total Fertility Rate (2010)



Rate of Natural Increase (2010)



Population changes can be analyzed by tracking births, deaths, migrations, marriages, and divorces. These statistics, related to important life events, are collectively referred to as vital statistics. The total fertility rate, which refers to the number of children born per woman in her lifetime, remained above 4 until 1973. It gradually fell to 2.1 by 1983, and by the 2000s became one of the lowest in the world. It was 1.2 as of 2014. The low fertility rate is directly related to the crude birth rate, which is the number of births per 1,000 persons. The crude birth rate of South Korea is 8.6. Nevertheless, the crude death rate (the number of deaths per 1,000 persons) is 5.4. The rate of natural increase (the difference between births and deaths) is 3.2 per 1,000 persons. Metropolitan areas have higher total fertility rates, and the rates of natural increase are higher in the Greater Seoul Metropolitan Area, northern Chungcheongnam-do, and Busan-Ulsan regions.

The annual number of births in Korea continuously decreased over the years to 470,000 while the number of deaths slowly rose and reached 260,000 by 2010. Examining the sex ratios (the number of males to 100 females) by birth order, the sex ratio fell into the natural range (103–107 males per 100 females) for the first child. In the case of the third or later child, the sex ratio reached as high as 180 in 1995, which was recognized as a serious social issue; however, the situation was improved and dropped to 111by 2010. Of total births, first children account for 50% while children born third or later only account for 11%. In 1990, the largest percentage (54%) of mothers giving birth was in the 25-29 age group. In 2010, the largest percentage (46%) of mothers giving birth was in the 30–34 age group, which indicates that the age of mothers giving birth is becoming older in relation to the increase in age of marriage.

Compared with 1990, the number of deaths in 2010 increased by 14,000. However, the number of deaths decreased in the 0–69 age groups, and only increased in the 70 or older age group. The number of deaths among young people and the working age population has clearly decreased along with the advancement of medical technology, while the number of deaths in the elderly population has increased as Korean society becomes older.

In 2011, Statistics Korea estimated and projected changes in the population structure through the year 2060 by gender and age. The estimation was made with the cohort component method using the 2010 population census data, along with the vital statistics and international migration data since 2005. Population estimation was conducted with three different growth scenarios: low-growth, median-growth, and high-growth. According to the low-growth scenario, the population will peak at 50.02 million in 2016, and then return to the 1974 level of 34.47 million by 2060. In the median-growth scenario, the population will increase from 49.41 million in 2010 to 52.16 million in 2030. Then it will decrease and return to the 1992 level of 43.96 million by 2060. In the high-growth scenario, the population will peak in 2041 at 57.15 million, then decrease to 54.78 million by 2060.

Brief Interpretation of the Maps

For the 2010 Total Fertility Rate map, the data shown in the legend ranges from less than 1 to higher than 1.8 with a national average of 1.2. Because these numbers refer to the average total number of children ever born in a woman's lifetime, interpretation of spatial patterns becomes difficult. The mapped data refer to a specific year, 2010, while no consideration was taken to account for the pattern of migration of the women over their lifetimes. Thus, the map only represents the time frame of an instant and not a true lifetime geographic pattern. Nevertheless, the map illustrates a general lower fertility rate in urban centers, but substantially higher fertility rates in suburbs.

The 2010 Rate of Natural Increase map depicts data from minus 5 or less to 5 or more per 1000 people with the national average at 3.2. Thus, the significant increases are represented by the two darkest purple colors on the map, which produce a spatial pattern that is quite similar to the major lines in the transportation network and in urban areas and surrounding suburbs.

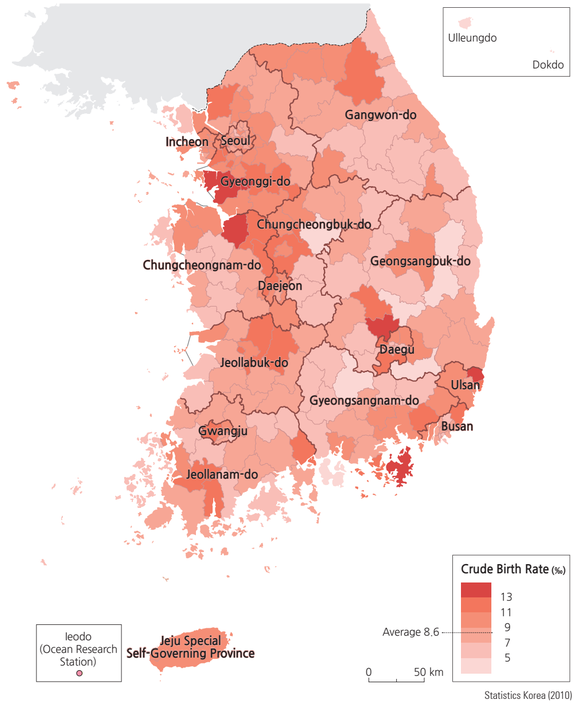
The 2010 Crude Birth Rate map shows data ranging from less than 5 to more than 13 births per 1000 persons with a national average of 8.6. This map correlates very highly with the 2010 Total Fertility Rate map in spatial arrangement. Of course, one would expect higher crude birth rates in places of higher total fertility rates.

The 2010 Crude Death Rate map displays data ranging from less than 5 to more than 13 deaths per 1000 persons with a national average of 5.4. This map has a distinctly different spatial pattern than the Crude Birth Rate map. While crude death rate is low in the urban areas, it is high in the rural areas where the bulge of the population pyramid is in the older groups.

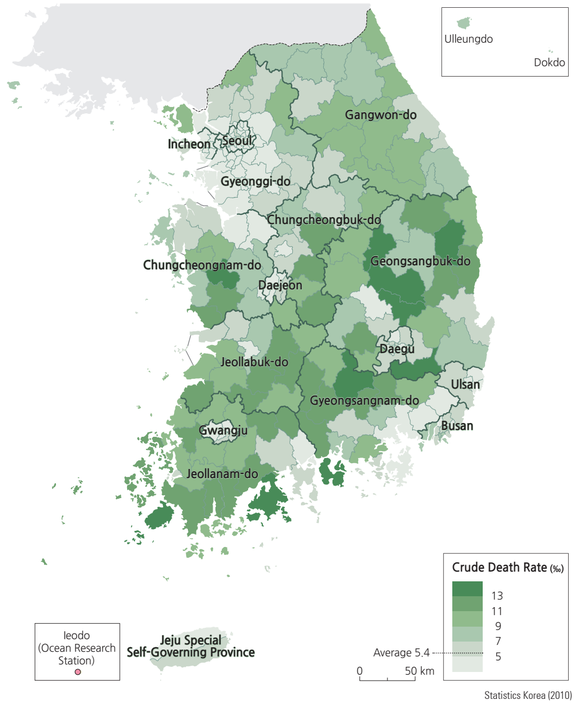
The Projected Population by Age chart makes projections of future population based on low, medium, and high population growth rates into the year 2060. In all three scenarios, population decline is expected. Also shown is the structure of three age groups, 0-14, 15-64, and 65 and above, corresponding to a school-age group, a labor force group, and a retirement group. These projections provide a glimpse into the kind of policies that may need to be implemented to mitigate future imbalances in numbers of schools and teachers, income levels for workers, and retirement welfare for the aged.

Given the disparity between urban and rural areas in birth, death, fertility, and natural increase rates, how important is it to consider an evenly distributed pattern of health care clinics and hospitals so as to minimize the disparity between easy urban access (better health care and better facilities) and longer travel to reach rural health facilities that may only be able to provide minimal health care? Do North American countries face the same problem?

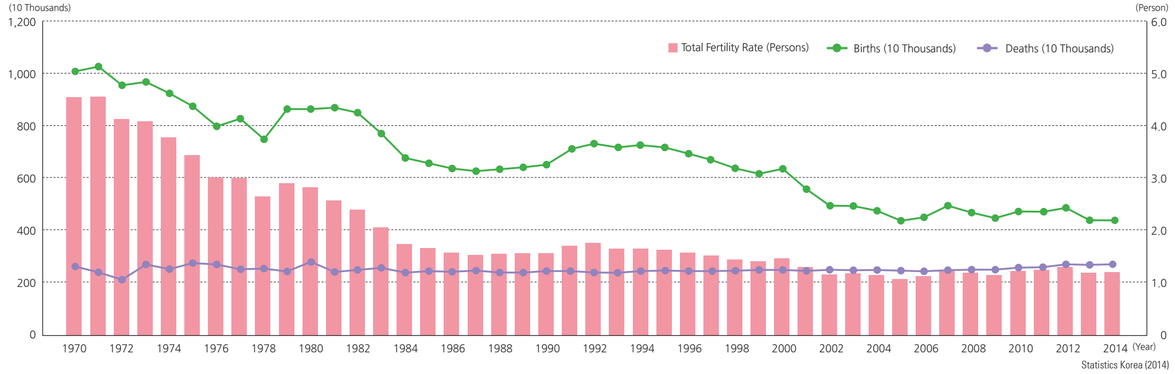
Crude Birth Rate (2010)



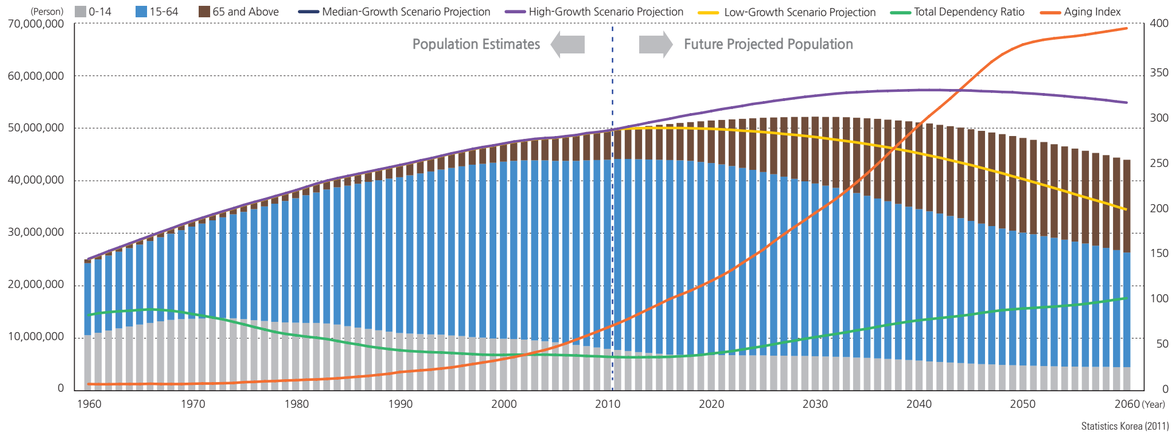
Crude Death Rate (2010)



Births, Deaths, and Total Fertility Rates of Korea

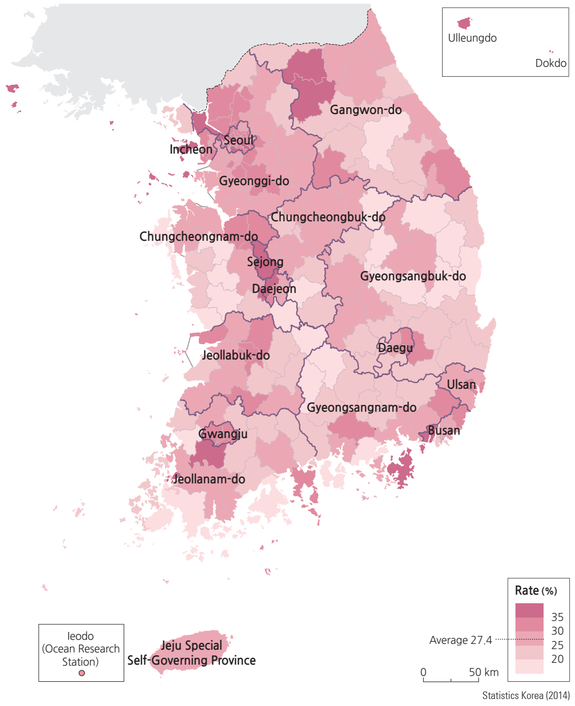


Projected Population by Age



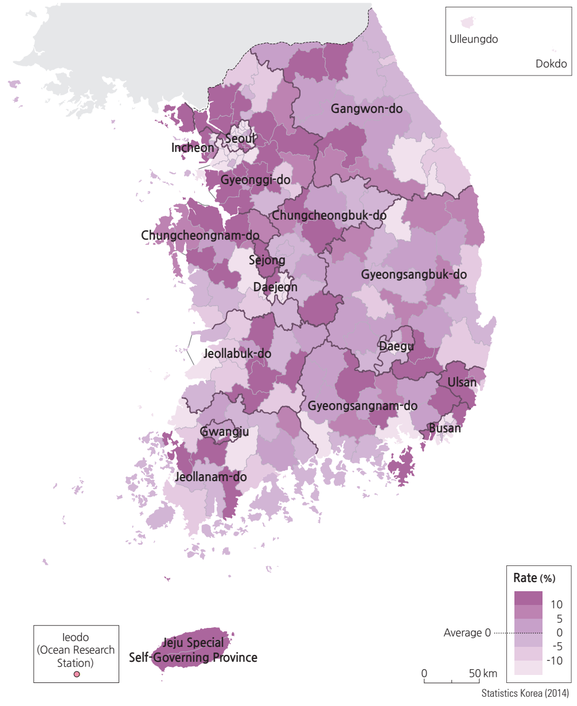
Migration

Total Migration Rate (2014)



Statistics Korea (2014)

Net Migration Rate (2014)



Statistics Korea (2014)

Population migration can be characterized according to duration of stay, location, distance, and motivation. Domestic migration is a move within a national border while international migration crosses an international border. Domestic migration can also be an in-migration or an out-migration between regions, provinces, or cities. Net migration is the difference between in-migration and out-migration of the same place in the same period of time. If the number of in-migrants is larger than the number of out-migrants, there will be an in-migration surplus. In the opposite case, there will be an out-migration surplus. The number of total migrants is the sum of in-migrants and out-migrants. The migration rate is the total number of migrants in an administrative area as the percentage of the number of residents registered in that administrative area on July 1 of the year.

The Korean domestic migration had increased over many years during the industrialization and urbanization periods. Since the early 2010s, it is gradually decreasing because of better transportation and an aging population. Migration to the Greater Seoul Metropolitan Area intensified during the 1970s and 1980s as people moved there for jobs and schools. After the 1990s, regionally balancing development policies were implemented to relieve congestion. Many public institutions and private corporations were relocated to outside the Greater Seoul Metropolitan Area. The population of Seoul peaked in 1990 at10.6 million. Since then, the population has been gradually decreasing, and most out-migrants have settled in Incheon or Gyeonggi-do Province.

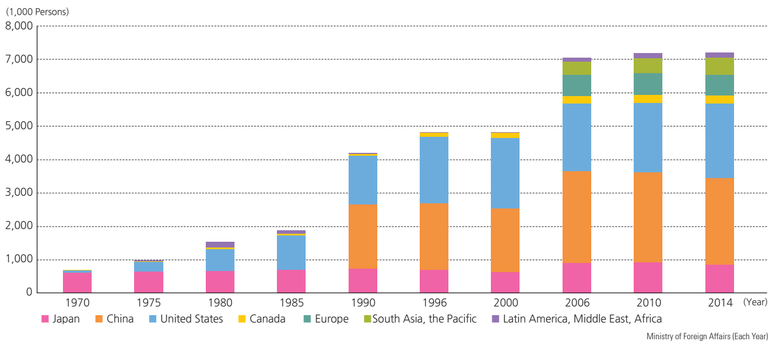
International migration refers to moving to and from another country. Net international migration is the difference between the number of immigrants (entries) and the number of emigrants (departures). A net immigration means more immigrants than emigrants. On the contrary, net emigration means more emigrants than immigrants. Total international migration is the sum of immigrants and emigrants. Korea has been experiencing net immigration since 2006, as the number of immigrants overtook the number of emigrants. Overall, the net immigration of foreigners has been rising due to increases in international marriages and opportunities for work or study in Korea.

In 2014, vital statistics for the Sejong Special Self-Governing City, a planned city that houses many government ministries, displayed the highest migration rate at 57%. Geochang in Gyeongsangnam-do Province had the lowest at 15%. In the case of net migration rates, statistics for Yeongdo-gu in Busan showed the largest negative rate at -25%, while the Sejong Special Self-Governing City had the largest positive rate at 24%.

The 20-40 age group tallied the highest in-migration as well as out-migration rates. The Sejong Special Self-Governing City had the highest interregional migration rate of 82% (at the administrative -si/-do level). Jeollabuk-do showed the lowest rate at 26%. Gyeonggi-do tallied the highest intra-regional migration rate at 41% (at the administrative -si/-gun/-gu level), while the Sejong Special Self-Governing City had the lowest rate at 18%.

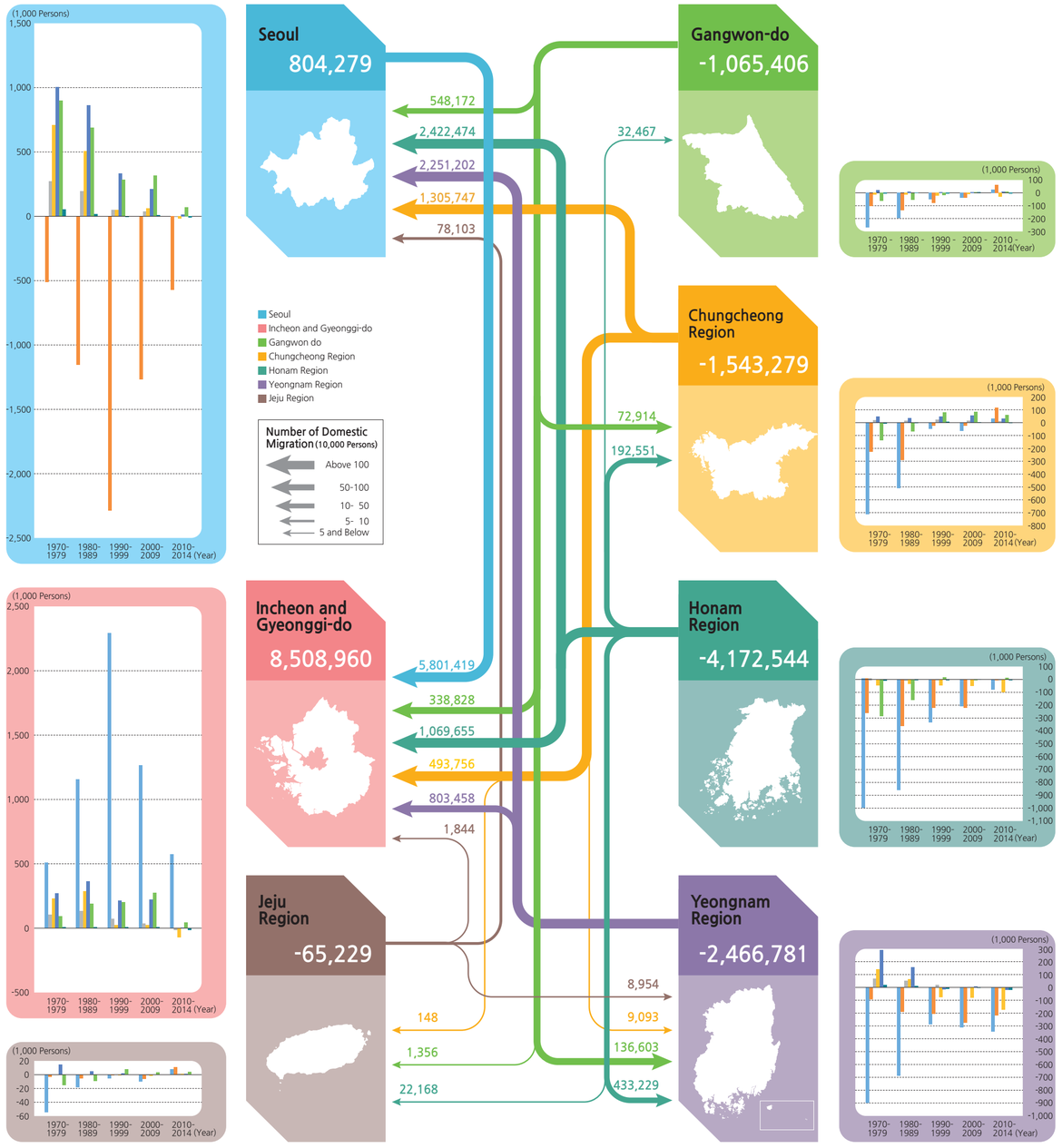
The international migration of Koreans can be divided into the out-migrant Koreans who stay or live abroad and the in-migrant Koreans who are living in Korea. Overseas Koreans are categorized into Korean nationality or foreign nationality. As of 2014, there were approximately 7.18 million overseas Koreans, primarily in China, the United States, Japan, and the former Soviet Union countries. Initially, Korean emmigrants overwhelmingly chose to live in the United States, but more recently they are also choosing many other countries, including Canada, Australia, and New Zealand. The number of foreign nationality Koreans who live in Korea increased from approximately 270,000 in 2006 to 700,000 in 2014. As of 2014, there were approximately 290,000 (42% of the total) overseas Koreans with F-4 (Overseas Korean) visas, followed by 280,000 (40%) with H-2 (working visitors) visas, another 75,000 (11%) with F-5 (permanent resident) visas, and about 20,000 (3%) with F-6 (marriage to Korean citizen) visas. As of 2014, more than 290,000 foreign nationals of Korean descent have reported their domestic residences. The number of Koreans who live in Korea with permanent residency in another country increased from approximately 40,000 in 2005 to 80,000 in 2014. Since the 2000s, the number of people who have escaped from North Korea has increased significantly, and, among these refugees, there have been more women than men.

Koreans Living Overseas by Country and Year



Ministry of Foreign Affairs (Each Year)

In-Migration and Out-Migration of Major Regions (1970-2014)



Statistics Korea (Each Year)

Brief Interpretation of the Maps

The 2014 Total Migration Rate Map illustrates total migration rate of all in- and out-migrants at the -si/-gun/gu administrative level. The data indicates a range of less than 20% to higher than 35% with a national average of 27.4%. The spatial pattern of total migration rate is highest in two of the administrative units in the north central area near the DMZ, in the Ulsan-Busan industrial region, and along the western part of Korea that coincides with one of the high traffic transportation corridors.

The 2014 Net Migration Rate map presents the net migration range from more than 10% loss to more than 10% gain with the national average at 0. While most metropolitan and large urban centers show a net loss, all surrounding suburbs display net gains. These migration patterns clearly indicate that the central core of large cities have been saturated and people are willing to move into surrounding suburbs due to more efficient transportation modes in recent decades. The Seoul subway system extends in many directions to connect to all surrounding suburbs. This also creates new spatial phenomena and patterns that relate to daily commuters (see page 77).

Are there spatial pattern similarities and differences between the two 2014 migration maps (one on total migration and one on net migration)? What can you conclude about the distances traveled for migrants in areas of the map that similar patterns? By the same token, if the same area shows different spatial patterns between the two maps, what can you surmise about the distances traveled by migrants to and from this area?

Housing

At the end of the Korean War (1950–1953), the Korean government started housing projects as a part of post-war reconstruction efforts. Until the 1960s, strategic investment priorities were placed on rebuilding industries. Government investment in housing was therefore very small, reaching only 2.4% of GNP during the 1962–1966 period and 3.0% during the 1967–1971 period. During these periods, housing developments were mostly led by the private sector, and only about 13% of housing development was supported by the public sector.

As the population grew, the demand for and supply of housing units have both increased as well. The housing supply has soared since the 1980s, exceeding 10 million housing units by the year 2000. The housing supply rate exceeded 100% by 2008, meaning that nationally there is enough housing for everyone. There are, of course, regional differences; some regions have more than enough housing supply, other regions do not. Traditionally, the dominant housing type was single-detached dwellings; however, due to pressure on available space, these have been outnumbered by apartments, thus increasing the apartment residence rate significantly. The single detached dwelling ratio was 87.5% in 1980, but dropped to 27.3% by 2010. During the same period, the apartment ratio has increased from 7% to 59%. The supply of apartments varies by region, and the trend shows that the supply is mainly concentrated in the capital and metropolitan areas rather than in non-metropolitan areas.

In the 1970s, the Korean government began to invest more heavily in housing, and established a series of necessary policies and laws. For example, the Housing Construction Promotion Act was enacted in 1973, and the Act promoted provision of "national housing" using funds from government-owned banks or local governments. Priority to purchase was granted to people who never owned a home before, and this purchase-priority policy was maintained for more than thirty years. In addition, the national and local governments contributed to the improvement of the urban environment, with land improvement projects and residential land development projects. As a result, housing conditions in the Greater Seoul Metropolitan Area and other metropolitan cities improved significantly from the perspective of total housing stock as well as homeowner ratios. In 1975 there were 4.734 million housing units in total. The number of total housing units in 2010 was 13.884 million, which was about a three-fold increase since 1975. In the Greater Seoul Metropolitan Area, the number of housing units per 1,000 persons was only about 137 in 1975. It surpassed 200 by 2000, and reached 364 units by 2010 (a 2.7-fold increase from 1975 and an average of 2.75 persons per unit), indicating that three out of every ten people own a house. Regarding the total number of housing units, the Greater Seoul Metropolitan Area had 6.291 million houses in 2010 (45.4% of the national total). With such dramatic increases in housing supply, the housing supply ratio in the Seoul Metropolitan Area in 2010 was 99%, and, nationally, it was greater than 100%.

Brief Interpretation of the Maps

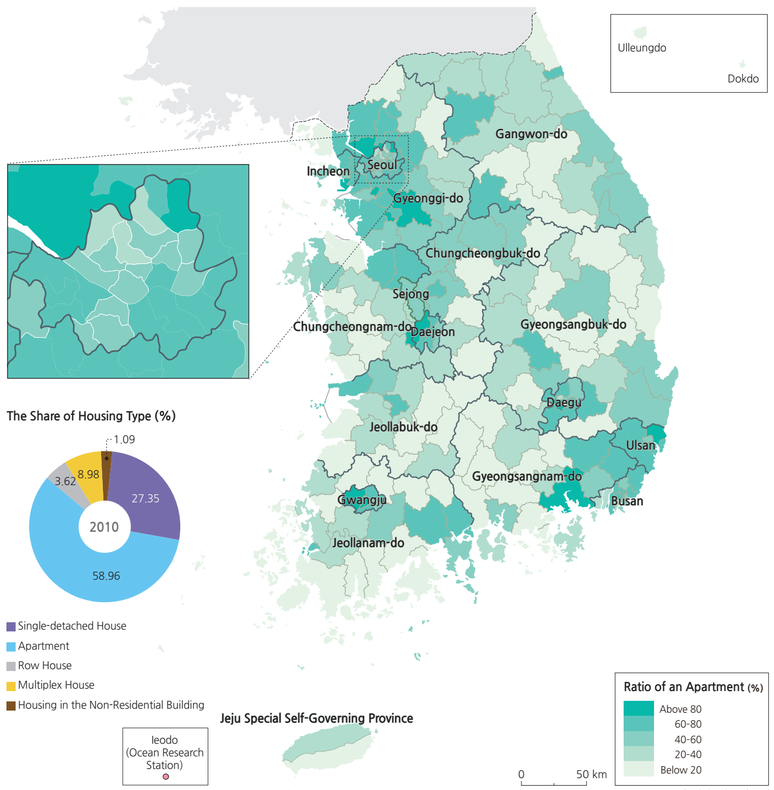
The 2010 Housing Type and Apartment Share map displays two sets of statistics: namely, map data pertaining to the percentage of apartments within each administrative unit at the -si/-gun/-gu level, and secondly, the percentage of each type of housing nationwide (as shown in sectors of a circle). The green colors on the map highlight very high percentages of apartments within administrative units. The spatial pattern of high apartment percentages correlates with urban centers while the lighter shades of green (representing lower percentages of apartments) are located in rural areas.

The sectors in the circle diagram depict that apartments make up 58.96 % of all housing units. The number of single detached houses still make up 27.35% nationwide, even though they are hardly visible in dense urban settings. The inset map enlargement of the Seoul area illustrates very high percentages of apartments with the exception of three administrative units.

The Housing Distribution and Housing Supply Rate map displays the percentage of housing rate in 2012 by administrative units at the -si/-gun/-gu level with the quintile choropleth mapping method (refer to p.11 for the explanation of this mapping method). The map uses graduated circles to highlight the distribution of the number of housing units. The map legend shows three classes of administrative units that have a housing supply shortage represented by the three lightest shades of brown at rates of less than 87%, 87–97%, and 97–102%. Although theoretically one would expect a 100% rate is a break-even point for the adequacy of housing supply, in reality, there needs to be a slightly higher percentage in order to be considered adequate because families of different sizes have different needs. The 102–105% class is considered ideal. Oversupply, of course, will lead to unoccupied housing units; three classes on the map (represented by the darkest brown shades) present classes of housing supply rates at 105–109%, 109–114%, and higher than 114%. The oversupply rate areas are associated with rural areas while the under-supplied rate areas are all urban areas.

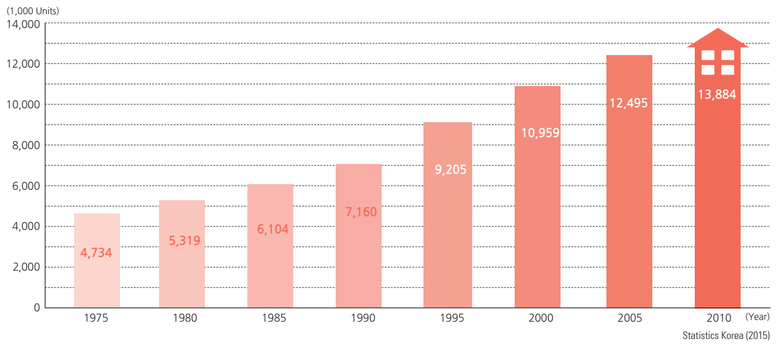
From analyzing these two maps, where would you most likely invest in and build apartment buildings if you are entrusted with the task of locating sites to build and offer housing supplies to awaiting families? (Hint: search for the lightest brown areas with the least number of graduated circles that are small.)

Housing Type and Apartment Share (2010)



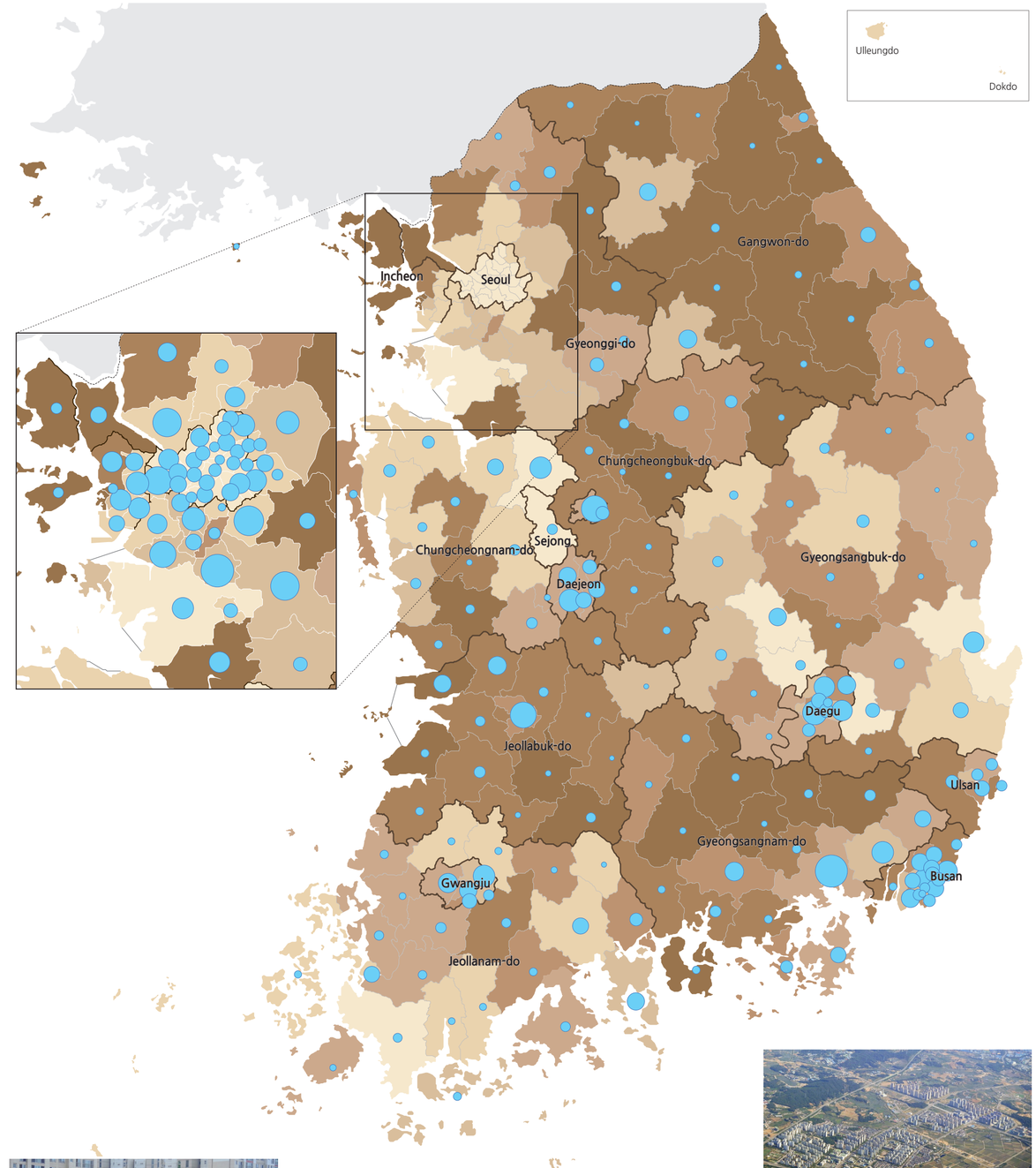
Statistics Korea (2011)

Change in Total Number of Housing Units



Statistics Korea (2015)

Housing Distribution and Housing Supply Rate



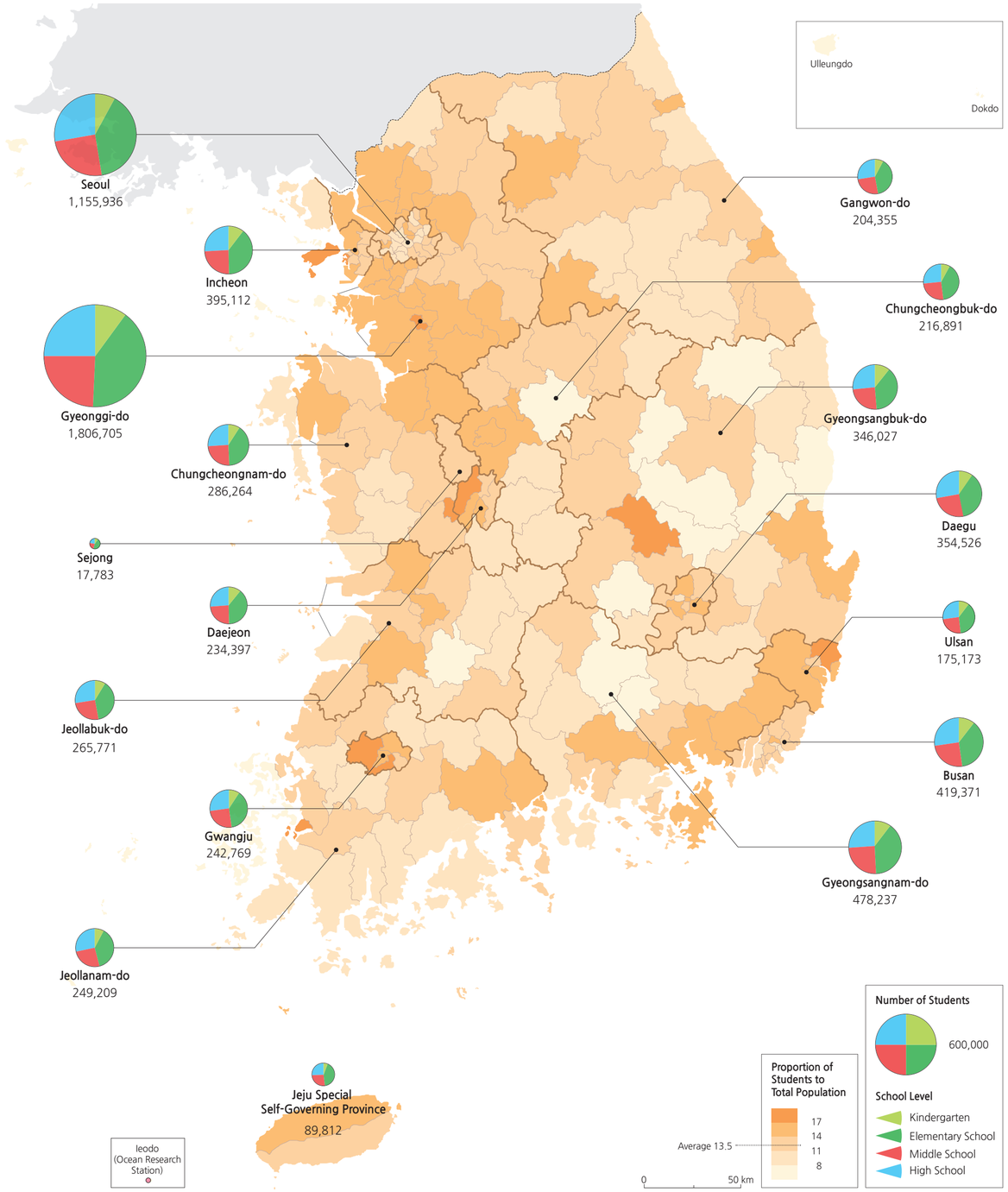
A typical high rise residential housing community with nearby convenient stores, roof-top greenery, and gated access for traffic control.

This aerial photograph shows the size of housing communities. All the high-rise buildings are residential housing.

Statistics Korea (2010), Ministry of the Interior (2015)

Education

Number of Students by School Levels by Administrative Units (2014)



Ministry of Education (2014)

Education has become the most important interest and concern for modern Koreans. Education is closely related to all aspects of society, such as family planning, population structure, household expenditure, residence selection, and city planning. In addition, a high level of enthusiasm for education and the high level of education spending, including private education expenditures, are conspicuous characteristics of Korean society.

As with many countries where modern education began at the birth of the republic, Korean education has undergone significant changes through the modernization process. The Korean school system is composed of elementary education for kindergarten and elementary school, secondary education for middle and high school, and higher education for college and related levels. Most Koreans acquire at least six years of elementary education and another six years of secondary education. The proportion entering higher education institutions is among the highest in the world.

Elementary and secondary education is provided by public educational institutions established by the state, along with a variety of private educational institutions. Various schools have been established for special purposes to cater to the characteristics of students. At the high school level, more choices such as college prep, vocational, and technical high schools are available. Higher education is based on four-year universities and two-year community colleges. There are also technical colleges covering various professions. Recently, online and extension colleges and degree programs have been developed. Master's and doctoral degrees are offered by many graduate schools, and many students also pursue graduate study abroad.

The middle school entrance rate in Korea has reached a perfect 100 percent since the late 1980s, and the high school entrance rate has been close to 100 percent since the mid-1990s. Accordingly, the number of schools has been consistently increasing, though a large number of elementary schools were closed in areas of population decrease after the 1990s. Kindergarten enrollment has significantly increased since the 1980s as kindergarten education has become more widely available. On the other hand, the total number of students differs by age group, with the number of elementary students decreasing steadily due to decreasing fertility rates. A declining fertility rate has also resulted in a decrease in the middle and high school populations since the late 1980s. As a benefit, an increase in teacher hires has reduced the number of students per teacher. Changes in school age population vary greatly by region. Gyeonggi-do has experienced an increase in the school age population while other regions show large decreases from 2000 to 2014.

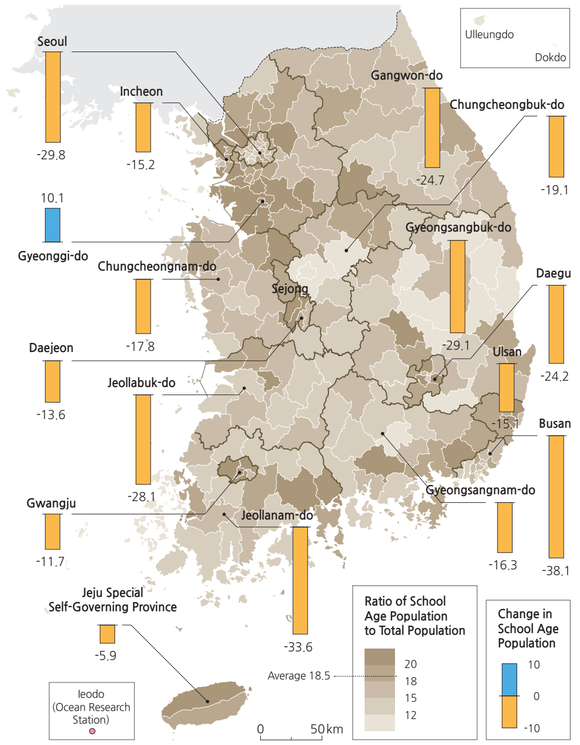
Brief Interpretation of the Maps

The 2014 Number of Students by School Levels by Administrative Units map was created with two sets of spatial data. The first set displays the proportion of students to the total population of each administrative unit at the -si/-gun/-gu level with the range of classes from less than 8% to more than 17% and a national average of 13.5%. The second set depicts the number of students in each of the 17 major administrative units (metropolitan areas and provinces) with a breakdown by school levels. This map shows a spatial pattern that reflects high concentrations of students in urban areas and surrounding suburbs. Rural areas, which generally have lower populations, simply do not have as many students. This creates a dilemma that the cost of operating a school in rural areas become proportionally higher based on per student expense. On the other hand, rural students may receive a better teacher-student ratio. From the graduated circles, one can clearly tell that the number of kindergarten students is the smallest group of students as affected by lower fertility rates and decreases in population in recent years.

Although, the 2000–2014 Changes in School Age Population map uses data from both 2000 and 2014 years, the spatial pattern does not differ from the 2014 Number of Students map; the only difference is that it illustrates one province, Gyeonggi-do, had a 10.1% increase while all other administrative units experienced a decrease. This increase is primarily due to population migration into the suburbs of Seoul, in Gyeonggi-do Province.

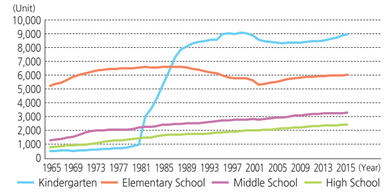
In urban areas, students normally live within short distances to the school they attend. Is this the case for rural area students? Discuss the modes of transportation available to both urban and rural students for their travels to the schools.

Changes in School Age Population (2000-2014)



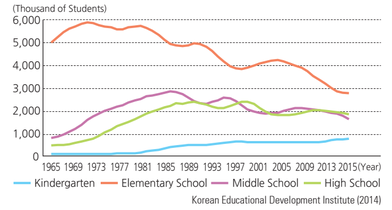
Statistics Korea (2014)

Number of Schools



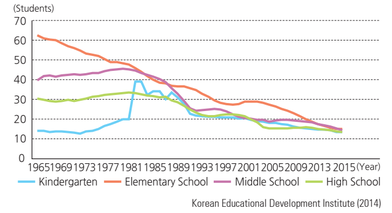
Korean Educational Development Institute (2014)

Number of Students



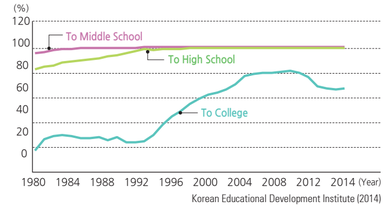
Korean Educational Development Institute (2014)

Students per Teacher



Korean Educational Development Institute (2014)

Entrance Rate



Korean Educational Development Institute (2014)

Due to population decrease and migration to urban areas, many rural schools had to close. One school in a remote area still operates with a small number of students and teachers—Sanyang Elementary School in Punghwa-ri, in Sanyang-eup, Tongyeong-si in the Province of Gyeongsangnam-do.

Eight of the nine total students in this school are gathered in a classroom for this photograph. There are four teachers at the Sanyang Elementary School, making it one of the best teacher-student ratios.

Higher Education

Higher education in South Korea has undergone significant changes. The number of colleges and college enrollments has increased rapidly, and various types of colleges have been established. There are many types of colleges: four year universities; two-year colleges; teacher education colleges for training elementary school teachers; and universities that offer education through remote access. In addition, there are many specialized colleges such as military academies and academies that offer training for various professions.

Universities are classified into national and private universities; a few national universities were established in the central city of each province. Private universities have been established on the basis of unique educational goals. Since the 1990s, as the number of private universities has significantly increased, the percentage of students entering universities has also grown at a dramatic rate, to the point where the current percentage of students entering university in Korea is the highest among Organization for Economic Cooperation and Development (OECD) countries. The positive aspect of this phenomenon is the achievement of a highly educated workforce, but this also results in significant economic burden to the students. The appropriate level of college tuition, scholarship support by the state, and the maintenance of fiscal sustainability of both public and private universities have emerged as important agenda items in debates among politicians.

Majors in universities are largely classified under humanities, social sciences, education, natural sciences, engineering, medicine, arts, music, and physical sciences. Many graduate schools have been established in accordance with increasing demands for development of higher education and professional knowledge. While many graduate schools operated by universities account for a large share, there are many graduate schools for religious training, executive development, medical expertise training, and legal professional training.

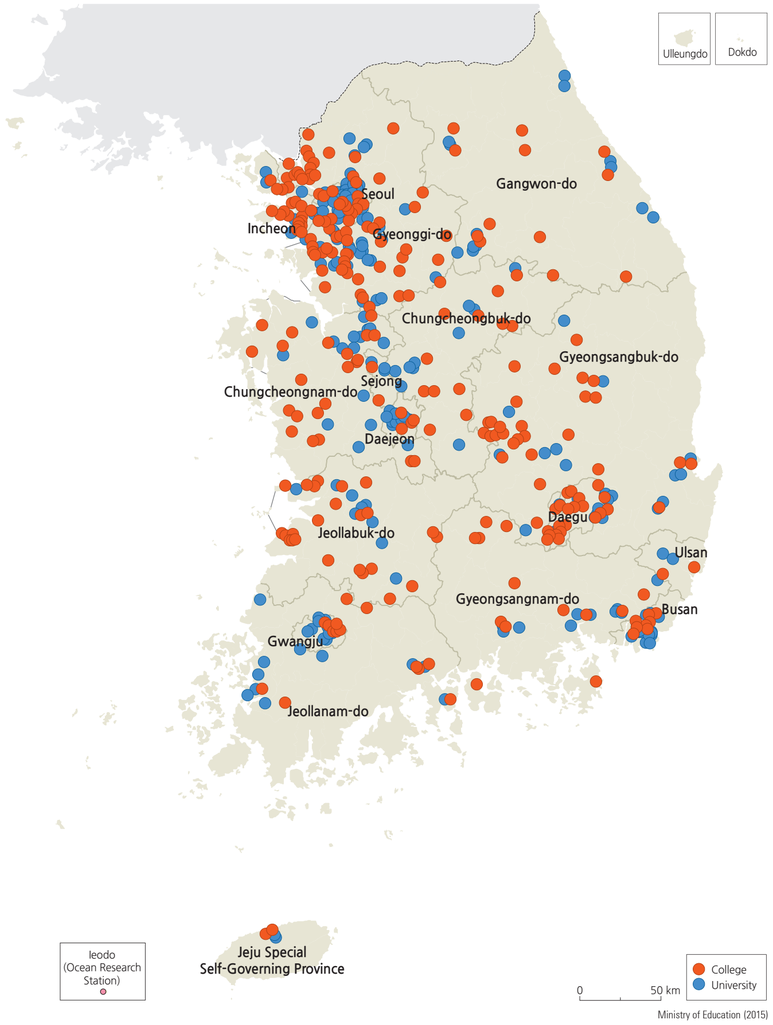
University professors mostly have doctoral degrees; their doctoral degrees are obtained at both domestic universities and foreign countries, such as the United States, Japan, and Germany. In addition, many foreign students have recently entered Korean colleges and graduate schools to take Korean language courses and to obtain a degree due to the increased quality of higher education garnered by Korean universities internationally.

Brief Interpretation of the Maps

The 2015 Distribution of Colleges and Universities map is a color coded dot map with each dot showing a single institution of higher education. Blue dots represent universities and red dot represents colleges. Beyond the classification by university and college, there is no further distinction between four-year colleges, two-year colleges, technical colleges, or teacher education colleges. The spatial pattern for universities correlates with metropolitan centers and urban areas of all sizes while colleges are located in both urban and rural areas. Many university students need to or choose to be away from home due to pursuing the most appropriate university programs that suit them best; some urban-based university students have the option of living at home while attending the university.

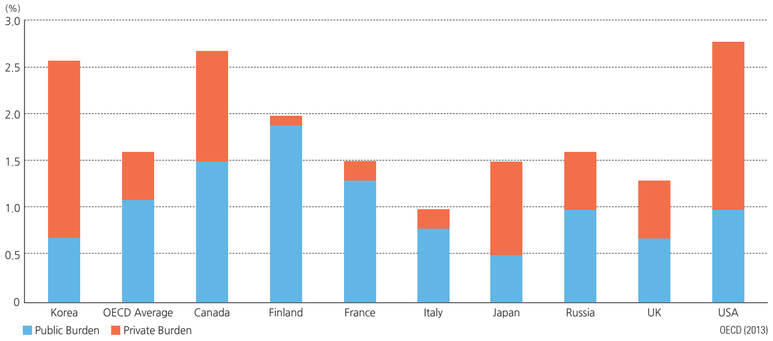
While it is not unexpected that university students may have to be away from home to attend college and given your understanding of where the Korean university is distributed, describe the distances they may have to travel to attend a university or college. While tuition costs, living expenses, and availability of scholarships and financial supports may enter into a student's decision on where to attend higher education, what are your own personal thoughts on all these factors? How would you prioritize them?

Distribution of Colleges and Universities (2015)



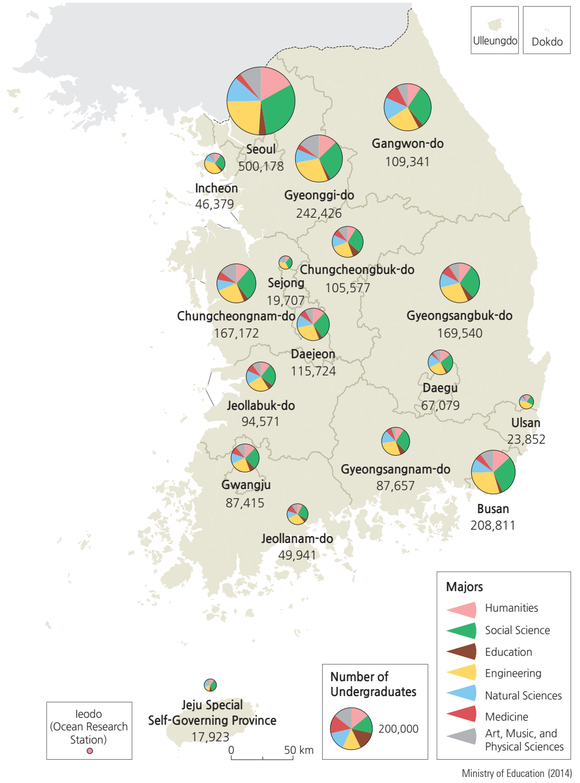
Ministry of Education (2015)

Proportion of Expenditure on Higher Education to GDP (2013)



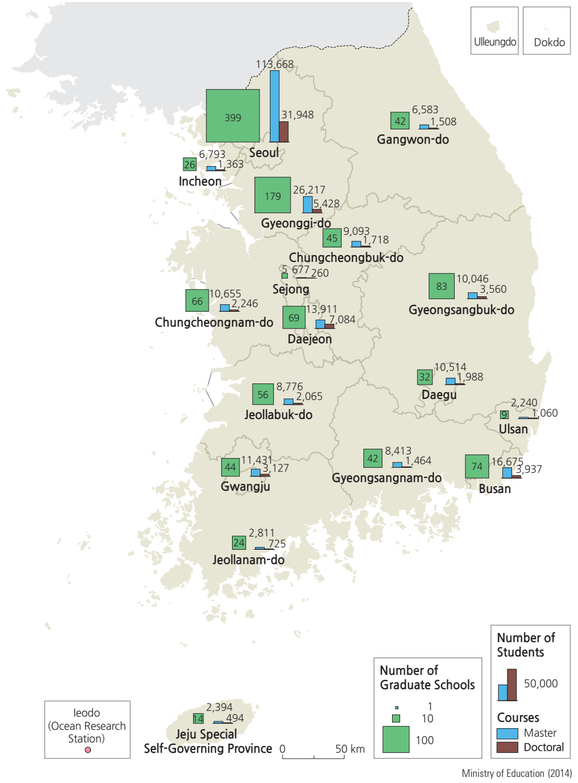
OECD (2013)

Number of Undergraduates by Major (2014)



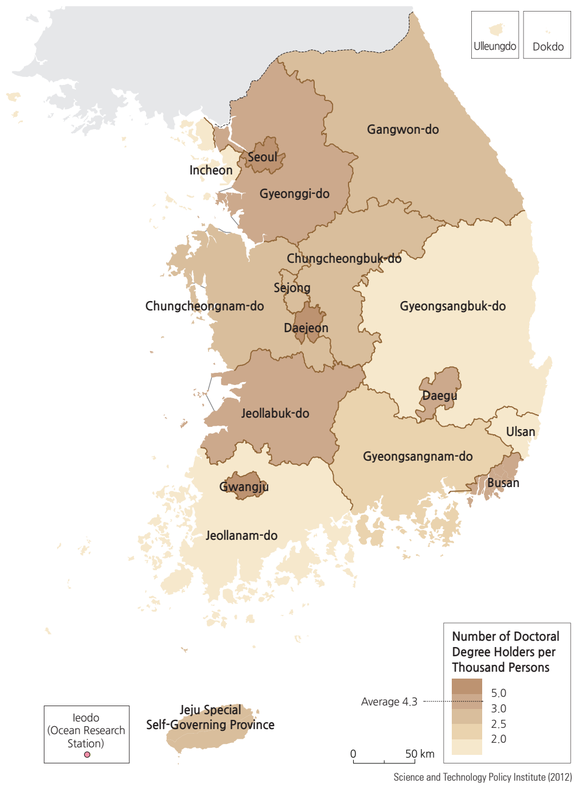
Ministry of Education (2014)

Distribution of Graduate Schools (2014)



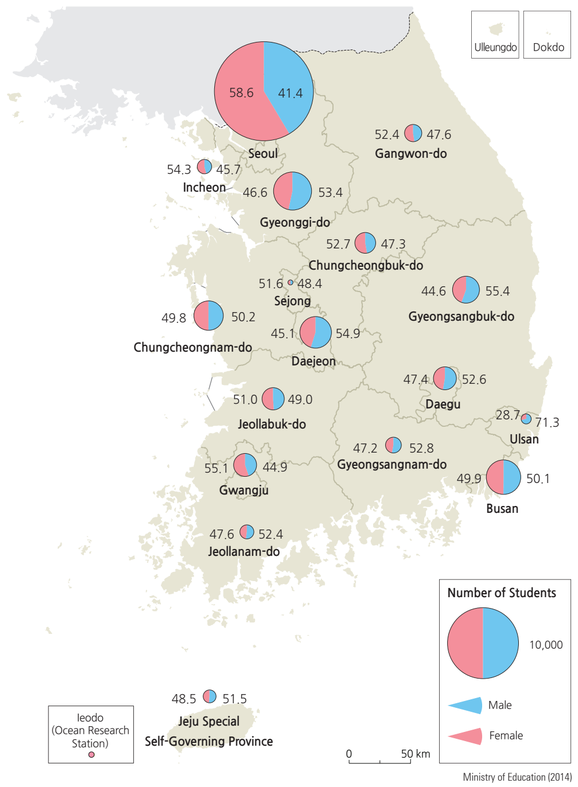
Ministry of Education (2014)

Doctoral Degree Holders (2012)



Science and Technology Policy Institute (2012)

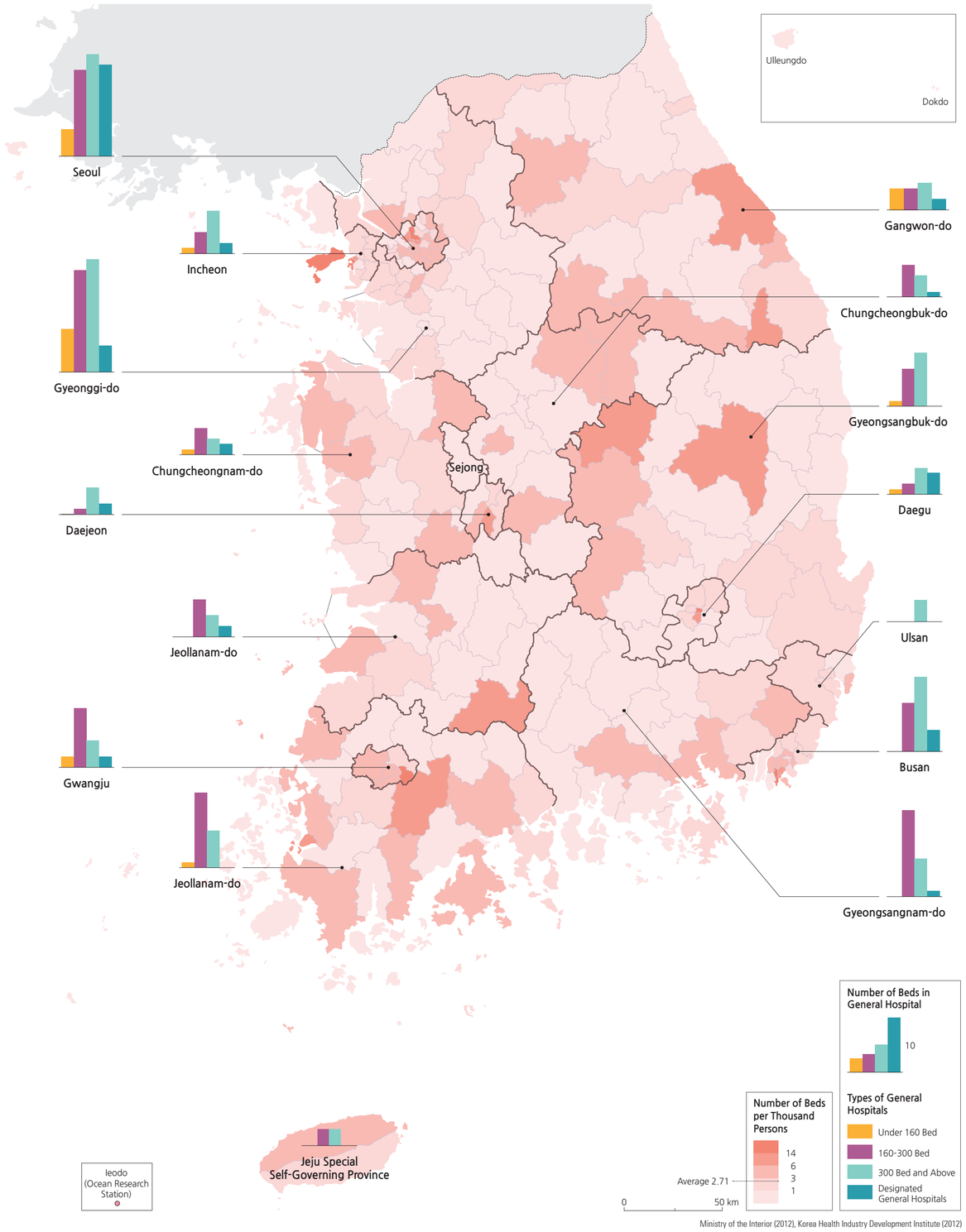
International Students by Region (2014)



Ministry of Education (2014)

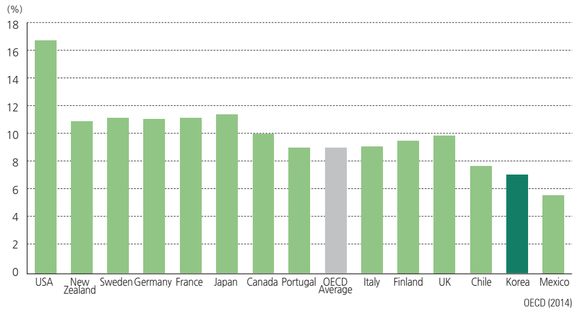
Public Health and Welfare

Distribution of General Hospitals and Number of Beds (2012)



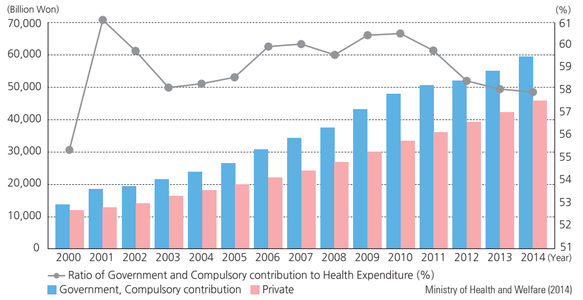
Ministry of the Interior (2012), Korea Health Industry Development Institute (2012)

Ratio of Medical Expenditure to GDP in OECD Countries (2014)



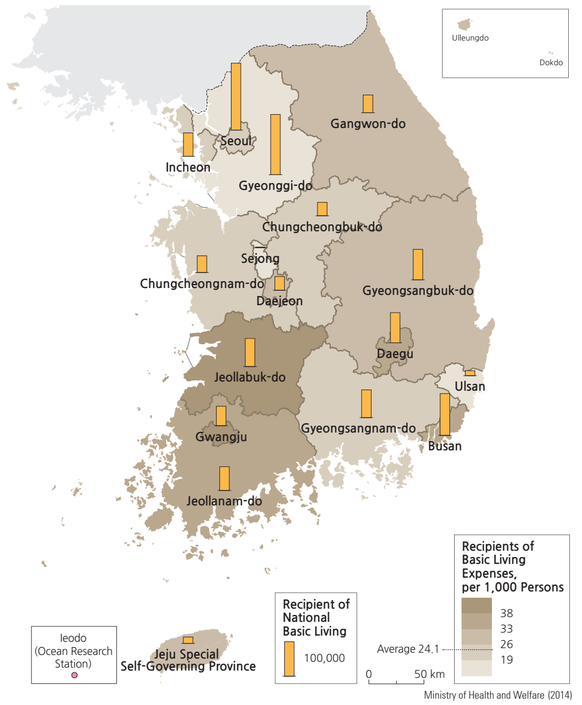
OECD (2014)

Medical Expenditure (2000-2014)



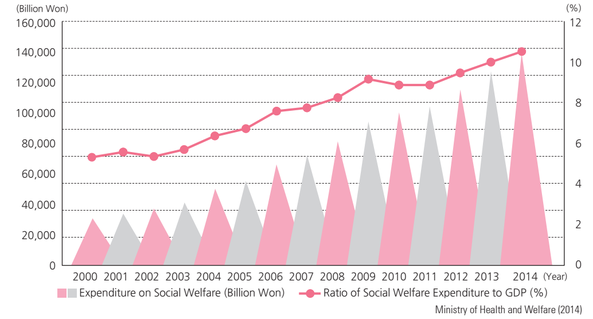
Ministry of Health and Welfare (2014)

Recipients of Basic Living Expenses (2014)



Ministry of Health and Welfare (2014)

Expenditure on Welfare and GDP (2014)



Ministry of Health and Welfare (2014)

The introduction of modern medical science that paralleled economic growth was connected to a national interest in health that subsequently led to an increase in life expectancy. Life expectancy in Korea, as a result of an abundance of well-trained medical personnel, high-tech equipped medical facilities, and a systemically maintained health screening system, is shown to be very high compared to the rest of the world. Above all, the introduction of a universal health insurance system allows all citizens to enjoy health insurance benefits. However, there are problems, such as increased medical expenses due to an aging population and a health span (the number of years that one lives in good health) that is shorter than the increasing life expectancy—in other words, people are living longer, but they are spending a greater percentage of their lives not in good health, as are also seen in many other countries. In addition, there are also a rising number of health problems that need solutions, such as new types of diseases, differences between metropolitan and rural areas in health care access, and health problems associated with lifestyle changes.

Government expenditures on health and various types of welfare by age, gender, and economic status have steadily increased. But these increases in expenditures are a financial burden to the government; the slowdown in economic growth, the rapidly aging population, and the decline in birth rates have become urgent problems that need to be solved.

Medical expenditures as a percentage of Korean GDP are about 7 percent, lower than that of major countries of the OECD. However, medical expenditures have constantly increased as a result of an aging population and the increased interest in health care and a better understanding of new knowledge in health care. Medical expenditures are classified into two categories: 1) expenditures of government and compulsory contribution and 2) the private financial resources of private insurance and personal expenses. In the case of medical expenses, public financial resources had steadily increased for many years, but have begun to decline recently. An important issue for Korea is how to balance demands for increased health care spending with demands for fiscal sustainability by the government.

Korea is very famous for well-trained medical personnel. The number of medical doctors and nurses is steadily increasing, and excellent medical personnel are being educated at all levels in colleges and universities, but the number of doctors and nurses per 1,000 people is relatively lower than that of other OECD countries.

Medical institutions in South Korea are largely divided into clinics, small hospitals, and general hospitals, depending on the size of the institution. Mild diseases are treated at widely distributed clinics and small hospitals by specialized doctors. Serious illnesses or diseases are treated at the higher medical institutions, such as at a (major) general hospital. As many dental clinics are also widespread, access to dental clinics is good, too. Oriental medicine hospitals and clinics provide medical services based on oriental medicine. Medical access has greatly increased because general clinics and small hospitals are evenly distributed nationwide, while general hospitals are mainly distributed in metropolitan cities.

Social welfare related government expenditures are allocated according to welfare categories such as poverty, disabilities, women, children, and the elderly, or to sectors such as housing and labor. Recently, welfare in Korea has emerged at the center of political debate. Various debates relate to such issues as the range of welfare services offered, the appropriate level of welfare, welfare-related government expenditures in terms of fiscal soundness, and the priority of welfare spending. Whereas the growth of the national economy has been a longstanding political issue that requires national resources, recent political focus has concentrated on the expansion of social welfare and the maintenance of fiscal soundness. Recent welfare-related expenditures have consistently increased. The sum of social welfare expenditures in the statutory private and public sectors have substantially increased every year. The ratio of social welfare expenditure to GDP has exceeded 10 percent in recent years; but this ratio is still lower than that of other OECD countries (20 to 30 percent in some European states). Although this difference should be considered in the context of the proportion of elderly in the population and differences in social welfare policies, the likelihood that social welfare expenditure in Korea will continue to increase in the future is strong. With the increase in social welfare spending, the related budget is also steadily increasing.

The 2014 Recipients of Basic Living Expenses map is constructed from data based on provincial and metropolitan administrative units. Therefore, the statistics are not finely detailed. In other words, the spatial variations of which -si/-gun/-gu district receives more expenses are not identified in such a generalized map.

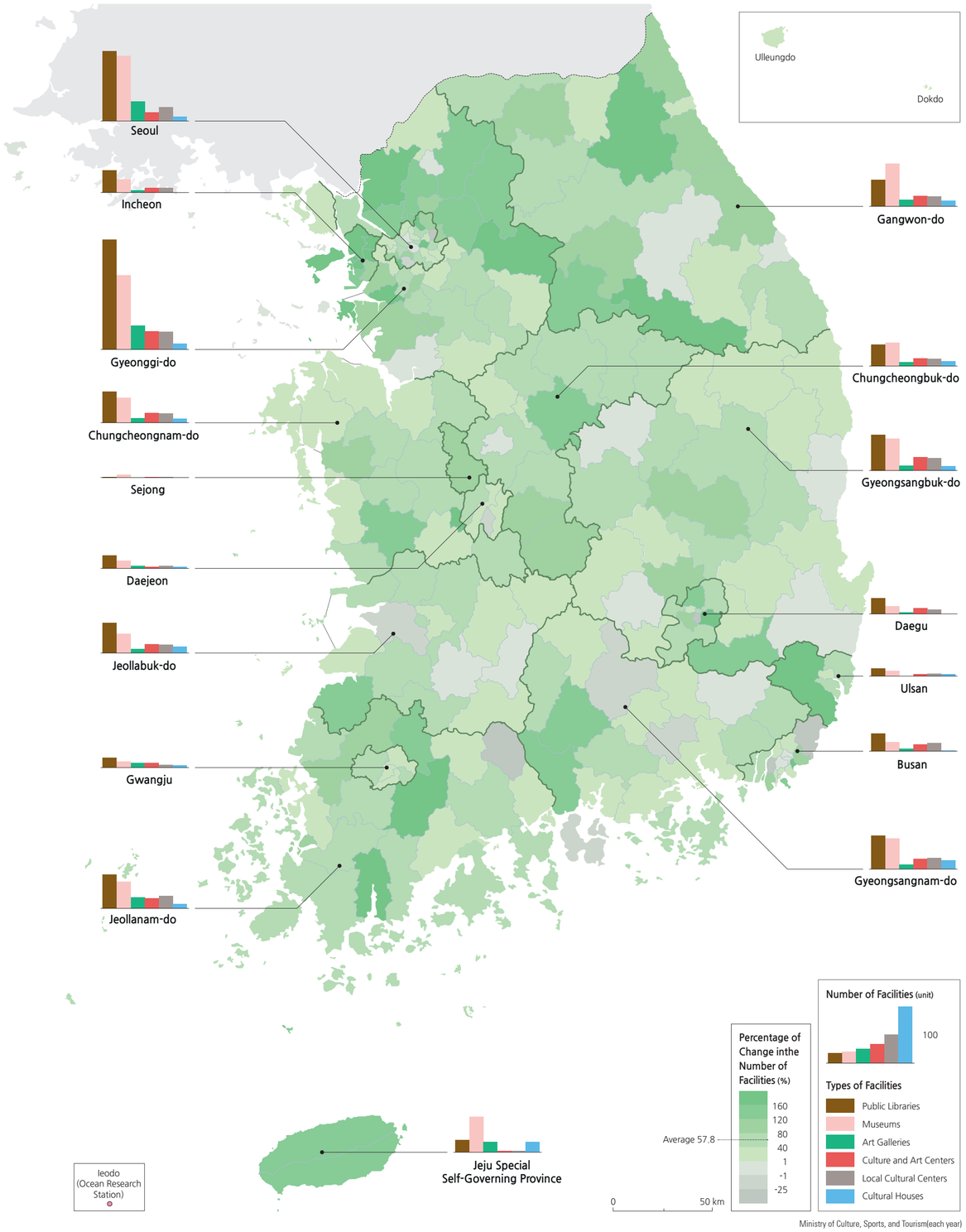
Brief Interpretation of the Map

As the title indicates, the 2012 Distribution of General Hospitals and Number of Beds map shows two separate sets of statistics. While clinics that are designed to treat general or minor illnesses are abundantly available throughout the entire nation, general hospitals that treat more serious health problems are mostly located in or near urban centers. Because population in urban centers is high, the ratio of the number of beds to population is relatively low in urban areas while modestly higher in rural areas. This does not mean that there is necessarily an inadequate number of beds in urban areas.

Do you think that the Korean government should invest more funds in building general hospitals in rural areas or is it a higher priority to find ways to increase the overall health care budget? Even though the spatial distribution of general hospitals are mostly in urban areas, how accessible are they? Is distance a critical factor here for rural residents, particularly in emergency care and trauma situations?

The Way of Life and Culture

Change in Public Cultural Facilities (2005-2013)



Ministry of Culture, Sports, and Tourism(each year)


Family in Korean Traditional Clothes

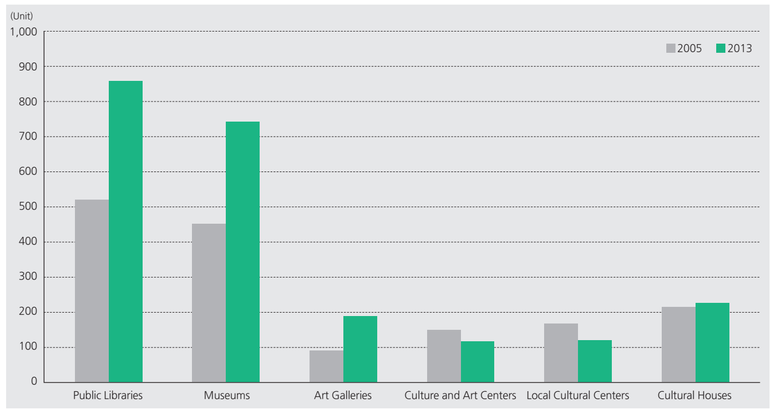

Korean Food


Gyeongbokgung in the Evening


National Museum of Korea in the Evening

Opera House in Seoul Art Center

Change in the Number of Public Cultural Facilities



Ministry of Culture, Sports, and Tourism (Each Year)


An outdoor event performer poses in traditional Korean costume with a typical Korean drum.

The Korean people have developed and maintained their unique national culture for a long time. The national culture of Korea emerged as an adaptation to the natural environment. The arrangement of mountains and plains, as well as climate, is the foundation of the cultural determinants of the Korean people. The Korean way of life, as represented by food, clothing, and housing, is central to understanding Korean culture. Clothing materials and the development of clothing culture, various food processing methods and new food ingredients, and harmony between nature and residential space in overcoming natural restrictions, all are components in the traditional culture that influence the Korean way of life. However, traditional Korean culture is not confined to a way of life formed through adaptation to the environment. Traditional Korean culture displays cultural diversity that embraces both traditional heritage and other cultures. Various cultures were introduced into the country, and then absorbed into Korean culture sometimes Korean culture has spread to the outside world. The traditional way of life changes to fit the conditions of modern life.

Interest in the improvement of living standards and culture are related to the growing demand for space to accommodate cultural activities and cultural diversity for the enjoyment of a variety of cultural activities, such as libraries, museums, theaters, and art galleries. Additionally, facilities and spaces for movies, sports, and other physical activities have become important factors in the modern daily lives of Koreans. Overall, Korean modern life and culture have rapidly changed as cultural, leisurely, and recreational opportunities and venues have expanded and diversified.

In addition to diversified cultural facilities, Korea has also established many national parks, some with geomorphic wonders, to supplement UNESCO World Heritage Centers to provide Koreans with leisurely activities as well as attract global visitors and tourists. All these facilities and parks are evenly distributed in each region of the country and designed to meet the basic cultural demands of the local population. In addition, the cultural infrastructure carries significant meaning related to the cultural rights of people.

Facilities such as libraries, museums, and art galleries have been steadily increasing in number and expanding in size and diversity in accordance with the growing demands of local residents. Various programs operate in each region based on cooperation with local communities. Within libraries and museums, exhibitions and collections have been expanded. Theaters and exhibition centers which offer various programs have been increasing in number and attracting more patrons and visitors.

The digital age ushers in yet another dimension of Korean culture in the form of new wave and K-pop entertainment culture in songs, movies, and videos. Similar to the kung fu movie culture from Hong Kong and the Bollywood culture from India, the Korean Wave is invading the world. The diffusion of Korean Wave or K-pop into huge markets in China, Japan, Hong Kong, Taiwan, Southeast Asia, Europe and North America brings a new avenue for cultural diffusion and a new and significant economy to the Korean entertainment industry. Internet apps such as YouTube helped popularize the now famous “Gangnam Style” dance video worldwide. A large number of Korean movies are now available in major US movie channel providers. Korean immigrants in large US cities such as Los Angeles, Atlanta, Honolulu, Houston, and Chicago are proud to showcase their culture, share their food, as well as music and dance with their US friends. In fact, Korea Town in New York City is adjacent to the Empire State Building where many business people as well as tourists are exposed to the Korean culture every day.

Brief Interpretation of the Map

The 2005–2013 Changes in Public Cultural Facilities map presents two sets of spatial data. The first set is based on the percentage of change on the number of cultural facilities at the -si/-gun/-gu level. The green shades on the map illustrate the percentages of increase while the grey and dark grey shades depict percentage decreases. A quick count of the yellow and red shades indicates that there are only a handful of-si/-gun/-gu units that experienced a decrease; the rest of the nation shows modest to very large increases, even in excess of 180%. The second dataset displays the absolute numbers of cultural facilities as classified into libraries, museums, art galleries, cultural and art centers, local cultural centers, and cultural houses. This second dataset clearly verifies the higher concentrations of cultural facilities in metropolitan centers as they must serve very large numbers of people.

Is it a fair statement to say that people who live in rural areas are disadvantaged as far as having so few cultural facilities available to them? Justify your yes or no answer by analyzing operating costs of these facilities, or by distances a rural resident must travel to visit these facilities, or by the efficiency of transportation. If you are a rural resident, would you welcome a trip to the city or would you be satisfied with just visiting the local cultural facilities?

Korean Culture and Daily Life

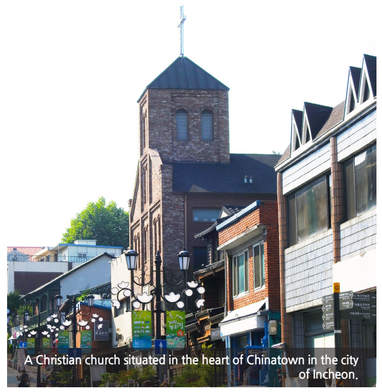
Koreans live their daily lives with a deeply rooted set of traditional cultural traits in harmony with modern age norms. While the population is mostly native Korean, there are also substantial amount of foreigners living in Korea, providing a diversity of cultures. Among foreigners, the Chinese are the most notable in Korean society. The Chinatowns in Incheon and Busan have thriving businesses of various kinds. There is a presence of Russians in Busan due to the shipping business. Many Russian businesses are also mingled with Chinese businesses in the Chinatown in Busan, thus attracting a lot of tourists. Hundreds of thousands of Western foreigners live in Korea to conduct businesses, teach, or participate in joint exercises on military compounds, infusing some Western culture and businesses into the cultural landscape. American fast food chain stores, convenience stores, banks, insurance companies, and delivery services are everywhere.

Religion is an important part of Korean daily life. While the formal 2005 census tallied 29.2% of the population as Christians and 22.8% as Buddhists, these numbers may not be very accurate. The difficulty of collecting a proper tally of Korean religious citizens is that a substantial percentage of the population does not report itself as religious simply because there is no formal equivalent to a 'baptism ceremony' in Buddhist practices in Korea. However, these 'non-religious' persons grew up following their parents in beliefs in Buddhism and offer prayers in Buddhist temples. There are over 20,000 Christian churches in Korea and 935 registered Buddhist temples but the number of persons believing in Buddhism remains elusive. In addition, Buddhism in Korea has undergone various suppressions, first by Joseon Dynasty rulers, then by Japanese colonial rule, and later by Christian presidents of Korea. Some of the Buddhist temples were purposely turned into tourist destinations so that they can be government controlled. Infighting between Buddhist sects also turned people to adopt Christianity as their religion. By the 21st century, fighting between Protestants and Buddhists increased.

There are also other religions in Korea such as Catholicism, Islam, Hinduism, and some forms of indigenous religions that remained from the early history of the nation. The respective number of followers of each religion is relatively small compared to Protestants and Buddhists. Some scholars may reluctantly refer to Confucianism as a religion, but Confucianism in China and in Korea is considered a branch of philosophy that deals with moral codes. Some sections of Confucian codes, such as the class system, have long been disbanded while others such as parental obedience and respect for elders are strongly practiced in Korea. When friends, work associates, or even strangers meet, they lightly bow to each other with respect before engaging in a conversation. Around the dinner table and out of respect, no one will raise a pair of chopsticks unless the oldest person starts to eat first.

The working age population is generally very hard-working, and students normally take their studies very seriously. Families also try to have quality playing time by traveling to the seaside, parks, or other cultural places. Perhaps the best way to portray Korean culture and daily life is through photography.

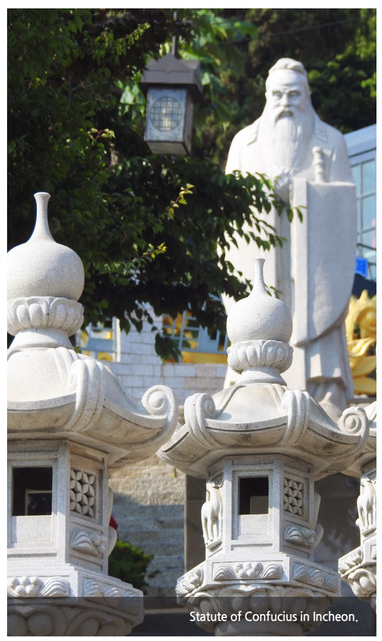

A very talented wood-carving artist demonstrates and sells his work on a street sidewalk near downtown Seoul.


A Christian church situated in the heart of Chinatown in the city of Incheon.


Sanbanggulsa Temple with a large Buddha statue on the slope of Sanbansan Mountain overlooking the sea on Jeju Island.

Posters of Pope Francis and St. Teresa lead to a local Catholic Church up the stairs.


This statute in Seoul portrays the rite of bowing and respect.


Statute of Confucius in Incheon.

Analytical Thoughts

How is the culture to which you are accustomed different from the Korean culture? Do you feel that you could live in a society with a very different culture? Could you adapt your daily life in an attempt to understand a different culture and a different people? Are you open-minded enough to accept the culture, daily life, religion, or food of a different group? How important is it to be open-minded in the age of globalization? Are you, or your family, using any manufactured product from Korea?


A performer in traditional dress plays the flute.


Fermenting cabbage in covered buckets to make kimchi in this specially-made thatched hut.


The Korean-Chinese Cultural Center at the entrance of the Chinatown in Incheon.


Changing of the guards ceremony in front of a palace.

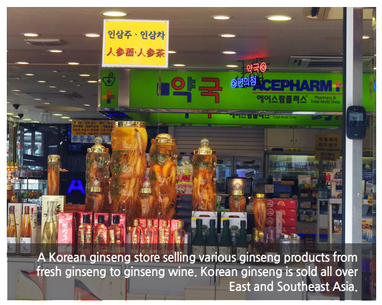

A traditional wood-burning stove kitchen in rural Korea.

An open-air fish market where women sell live seafood including octopus, squid, and sea snails.

A combination of Russian and Chinese shops attracts tourists.

A Russian restaurant specializing in Uzbekistan cuisine.


A street caricature artist making sketches of children.



A Korean ginseng store selling various ginseng products from fresh ginseng to ginseng wine. Korean ginseng is sold all over East and Southeast Asia.

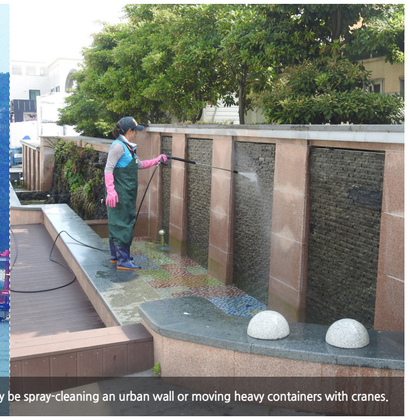

Three Buddhist nuns strolling down a downtown street.


Inside a classroom of a top science high school in Seoul.


Scene of an orderly high school cafeteria.

In a nation with democracy, South Korean citizens enjoy the right to protests of the government. Here, the police ensure that the protest is peaceful.

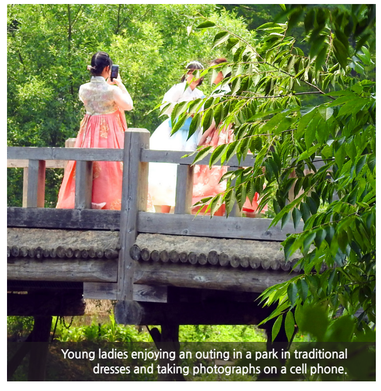
A typical rural farming community with greenhouses nurturing marketable produce.



Korean workers take their jobs seriously, whether it may be spray-cleaning an urban wall or moving heavy containers with cranes.

Some Korean restaurants today resemble some Japanese restaurants where a diner sits on the floor with mats, while food is served on a very low table. Korean hosts are normally very gracious in offering lots of dishes.

A typical open-air Korean barbeque restaurant where the Bulgogi style of meat is freshly cooked at the table.



Young ladies enjoying an outing in a park in traditional dresses and taking photographs on a cell phone.

A banner in a traditional farming village proclaims "those who farm are the greatest foundations under heaven and on earth."

As a leisurely activity, people enjoy fishing at the seaside.

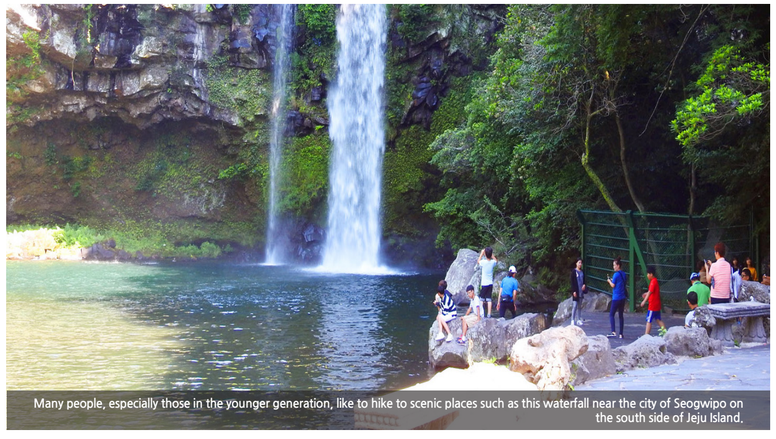
Leisurely activities are available in many urban settings. This picture was taken in Central Park within Incheon, where boating is popular with families.

A woman takes a walk in an art park.

The Gwamul open-air bath or spa (Jeju Island) provides separate sections for men and women.

A day at the beach is popular with families. This beach is not crowded but some easily accessible beaches near urban areas are.

A preserved farming village with thatched-roof houses.



Many people, especially those in the younger generation, like to hike to scenic places such as this waterfall near the city of Seogwipo on the south side of Jeju Island.

Gazebos are typically popular everywhere, especially under the hot summer sun.

World Heritage site at eastern Gyeongju City showing the mounds of burial tombs of royalty from the Silla Dynasty (57 BC-935 AD).