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NABO | Economic Outlook

Economic Outlook for 2023 and the Medium-Term

[Income and Population/Employment]



NATIONAL ASSEMBLY BUDGET OFFICE



국회예산정책처
NATIONAL ASSEMBLY BUDGET OFFICE

Economic Outlook for 2023 and the Mid-Term IV

- Income and Population/Employment -

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“Economic Outlook for 2023 and the Medium Term” belongs to a series of reports that present the economic outlook concerning the GDP growth rate and other important areas of the national economy over the next five years, based on objective and expert analysis of the economic conditions in South Korea and abroad. This report is published and distributed for use by the National Assembly when reviewing government budget proposals and bills and when setting items of agenda.

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Economic Outlook for 2023 and the Mid-Term IV

- Income and Population/Employment-

2022



This report has been produced in accordance with Article 22-2 of the National Assembly Act and Article 3 of the Act on the National Assembly Budget Office to support the activities of the members of the National Assembly. It was published after a review by NABO's Report Publication Review Committee (September 27, 2022).

Foreword

Economic policy aims to improve the quality of life for the citizens, and thus, it is necessary to understand the distribution of income among economic operators. The reason is that a three-dimensional economic cycle structure can be understood using not only economic indicators that confirm growth at scale but also income indicators in which the year's added value is distributed to households, businesses, and the government. Accordingly, NABO has published the four-volume report titled “The Economic Outlook for 2023 and the Medium Term”. Based on an objective and expert analysis of the economic conditions in South Korea and abroad, the report provides forecasts of the South Korean economy for the next five-year period. The report is intended to be used as a reference material by the members of the National Assembly when they conduct legislative activities related to budget bills and legislative reviews among other matters.

In this forecast, besides the existing forecast focused on expenditure component, the forecast scope has been greatly expanded to newly analyze factors that can impact the economy, such as growth potential, changes in industrial structure, income distribution, and changes in demographic structure. Thus, Volume 1, *Expenditures*, contains projections of GDP, consumption, investment, and expenditure items like foreign trade and consumer prices; Volume 2, *Growth and Finance*, contains projections of potential growth rates, total factor productivity, interest rates, and greenhouse gas emissions; Volume 3, *Production*, contains projections of value-added production in key industries like manufacturing and services; and Volume 4, *Income and Population/Employment*, contains projections for the income variable and the population/employment variable, such as gross national income, employee remuneration, and operating surplus.

As the Korean economy is transforming into a capital-intensive economy, the share of wage earners increases and the contribution of fixed capital is expanding in the course of economic growth, coupled with a decreasing share of indirect taxes in government revenue. Despite a recent boom in the labor market, there are growing concerns over an economic slowdown with employment, and population decline and aging due to crashing birth rates are also acting as additional headwind factors against economic growth. Therefore, it is time to look at the income distribution structure by economic subject and engage in policy-making based on this to secure the growth engine of our economy.

At a time when uncertainties are growing in domestic and overseas economies, we hope that this report will serve as a useful reference material when the members of the National Assembly have to make important legislative decisions.

October 2022

Chief of NABO Cho Euysup

[NABO's Income and Population-Employment Outlook for 2023 & Midterm]

(Unit: %)

	Yr. 2018	2019	2020	2021	2022	2023
Nominal gross domestic product (GDP)	3.4	1.4	0.8	6.7	4.7	4.6
Employee remuneration	5.3	5.2	2.4	6.1	8.3	4.8
Operating surplus	-1.1	-9.0	-7.1	5.3	-2.2	4.3
Fixed capital consumption	5.7	6.3	4.7	8.2	3.4	3.9
Net production & import tax	2.7	1.5	4.2	10.0	4.6	5.8
Gross national income (GNI)	3.4	1.9	0.9	7.0	4.4	4.7
GNI per capita (% , USD)	5.8	-4.0	-0.6	10.5	-7.1	8.0

		Yr. 2021	2022	2023	2024	2025	2026
Popul ation	Total population	-0.16	-0.12	-0.03	-0.06	-0.10	-0.13
	Total fertility rate (persons)	0.81	0.76	0.74	0.71	0.70	0.69
Empl oyme nt	No. of employed people	1.4	2.9	0.3	0.4	0.4	0.4
	Employment rate	60.5	62.0	61.9	61.9	62.0	62.0
	Economic activity participation rate	62.8	63.9	64.1	64.3	64.3	64.4
	Unemployment rate	3.7	3.0	3.4	3.7	3.7	3.7
	Wage growth rate	4.6	4.9	3.9	3.9	3.6	3.3

Source: National Assembly Budget Office, The Bank of Korea, Statistics Korea

[Composition of National Income Distribution]

(Unit: %, %p)

	2018	2019	2020	2021	2022	2023
Nominal gross domestic Product (GDP)	100.0	100.0	100.0	100.0	100.0	100.0
Employee remuneration	45.7	47.5	48.2	47.9	49.6	49.6
Operating surplus	25.8	23.1	21.3	21.0	19.6	19.6
Fixed capital consumption	18.9	19.8	20.6	20.9	20.6	20.5
Net production & import tax	9.6	9.6	9.9	10.2	10.2	10.3

Source: National Assembly Budget Office

Summary

I. Gross National Income and Distribution Structure

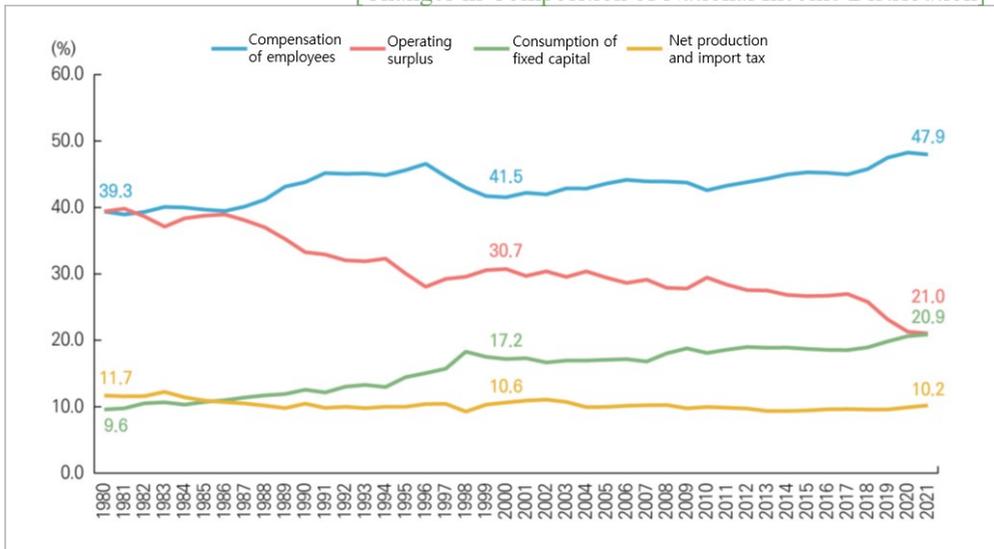
1. National income

- National income statistics record national income in terms of production, distribution, and expenditure
 - Given that the ultimate goal of economic policy is to improve the quality of life of citizens, it is necessary to understand income distribution among economic operators.
 - The gross domestic product (GDP) allocated to labor, fixed capital, government, and business can be identified through national income distribution.
 - Distributed national income consists of employee remuneration, operating surplus, fixed-capital consumption, net production and import tax.
 - Gross national income (GNI) refers to the annual income earned by Korean nationals, and the net income earned by Korean expatriates abroad is added to gross domestic product.

2. Trends by distribution component

- Income distribution among economic operators can be identified through national income distribution
 - In 1980, labor income (employee remuneration) and operating surplus were similar at 39%, but as of 2021, they have changed to 48% and 21%, respectively.
 - This is attributed to structural changes in economic activities from an increase in the number of wage earners and decrease in the number of self-employed proprietors.
 - Compared to the national income distribution structure of major countries, S. Korea has a low share of employee remuneration and a high operating surplus.
 - As of 2020, the ratio of employee remuneration to GDP is 48.2% in S. Korea, 55.4% in the U.S., 54.3% in Germany, and 52.6% in Japan.
 - As of 2020, the ratio of operating surplus to GDP is 21.3% in S. Korea, 24.6% in the U.S., 18.3% in Germany, and 13.7% in Japan.

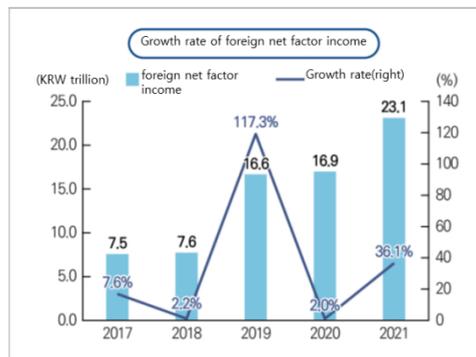
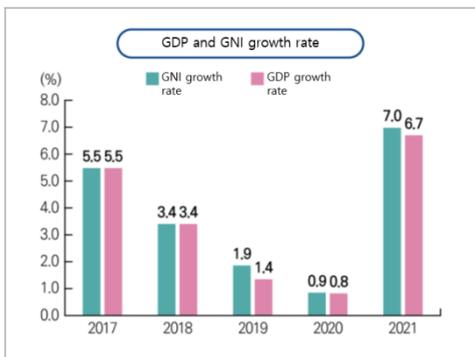
[Changes in Composition of National Income Distribution]



Source: The Bank of Korea

- ❑ Gross national income (GNI) has increased faster than gross domestic product (GDP) for the past three years.
 - This is attributed to the considerable increase in factor income from abroad during the same period.
 - The capital income account surplus increased, while foreign direct investment and stock market investment increased.
 - GNI per capita refers to the economic purchasing power of individual Korean nationals. As of 2021, it was USD35,373, ranking 21st among the OECD countries and higher than GDP per capita.

[Comparison of GNI Growth Rates]



Source: The Bank of Korea

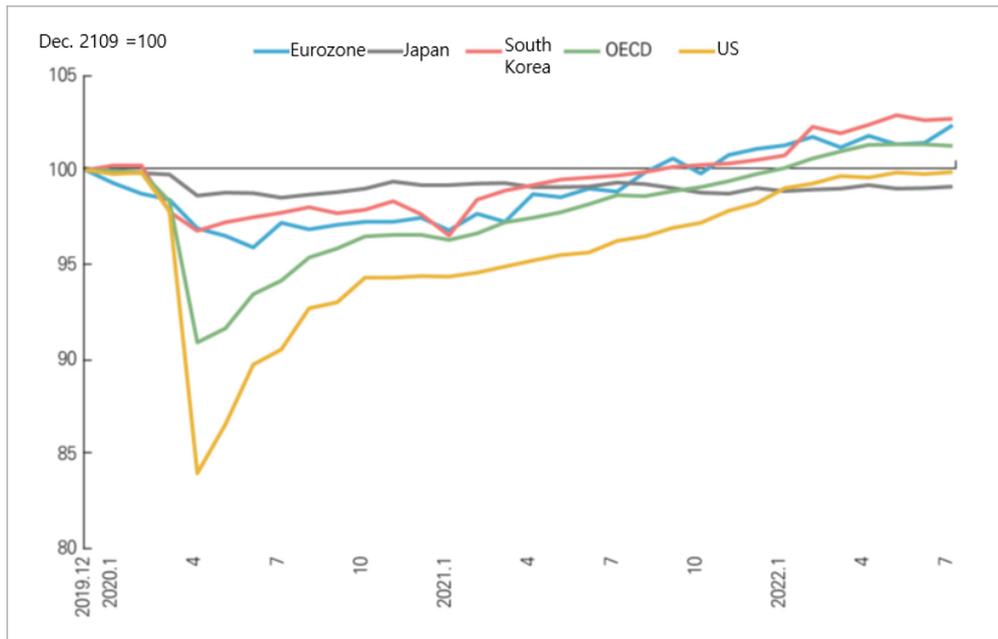
3. Population and employment trends

- ❑ According to the UN's World Population Prospects (2022), global population is projected to increase by 2050, followed by a declining rate of increase.
 - According to the above, the global population will increase from 7.91 billion in 2022 to 9.7 billion in 2050, but the population growth rate will slow down to less than 1% from 2020.
 - Population growth rate (%): 1.27% in 2010, 0.98% in 2020, 0.65% in 2040, 0.47% in 2050
 - The global total fertility rate is projected to decrease from 2.3% in 2021 to 2.1% in 2050, with life expectancy projected to increase from 72.8% in 2019 to 77.2% in 2050.
 - It was found that the factors of population increase and decrease by country income vary. For high-income countries, the population is in a natural decline (birth-mortality), but the increase in the immigrant population serves as a positive factor in maintaining population size.
 - In contrast, for low-income countries, the number of births exceeds the number of deaths, and natural population growth continues.

- ❑ The National Statistical Office (2021) predicts that S. Korea's population will decrease from 2021.
 - According to the National Statistical Office's future population projections (2021), S. Korea's population is projected to decrease from 51.84 million in 2020 to 38 million in 2070.
 - S. Korea's total fertility rate in 2020 is 0.81%, which is very low compared to the global fertility rate (2.3%).

- ❑ The number of the employed in major countries has gradually recovered to pre-COVID-19 levels from the second half of 2021.
 - The number of the employed in S. Korea, the Eurozone (EU), and the OECD recovered to pre-COVID-19 levels in the second half of 2021 or first half of 2022.
 - In 2020, the impact of COVID-19, resulted in a decrease in the number of the employed globally.
 - Since then, a gradual recovery has resulted in a return to the pre-COVID-19 employment level in the second half of 2021 for S. Korea and the EU, and the first half of 2022 for the OECD.
 - However, the U.S. has only returned to pre-COVID-19 levels in August 2022, and Japan has yet to recover to pre-COVID-19 levels.
 - In the first half of 2022, a high level of increase in the number of the employed was recorded in S. Korea and the U.S.
 - In the first half of 2022, the number of the employed (seasonally adjusted) in S. Korea increased by 2.0% quarter-on-quarter, and 2.4% quarter-on-quarter in the U.S.
 - For the same period, the number of the employed in the OECD and EU increased by 1.9% and 1.3%, respectively quarter-on-quarter, denoting a high overall increase in the number of the employed.

[Changes in the No. of the Employed in S. Korea and Other Major Countries Post-COVID-19 (seasonally adjusted)]



Source: OECD (2022), Statistics Korea

II. Forecasts for GNI and GDP Distribution

1. Employee remuneration

□ Employee remuneration shows a high rate of increase in 2022, followed by a slowdown in 2023.

- Employee remuneration is forecast to increase by 8.3% in 2022 and 4.8% in 2023.
 - In 2022, the number of wage earners increased significantly due to the favorable employment trend, and the wage increase rate also recorded a positive level, resulting in a large increase in employees' compensation.
 - In 2023, the growth rate in the number of wage earners and wages will slow down compared to 2022, and the rate of increase in employees' compensation is forecast to drop to 4.8%.
- (Upward factor) Increase in wage growth rate due to non-stop wage-inflation ripple effects
- (Downward factor) Slowdowns in both wage growth rate and growth rate in the number of wage earners

2. Fixed capital consumption

- ❑ Fixed-capital consumption in 2023 is forecast to continue its solid growth trend year-on-year (3.4%).
 - Fixed capital consumption is forecast to increase by 3.4% in 2022 and 3.9% in 2023 due to the impact of gross fixed capital formation and nominal GDP growth.
 - (Upward factor) Increase in capital expenditure investments, especially R&D assets
 - An increase in R&D investment increases the intellectual property products assets with a short useful life.
 - (Downward factor) Decreased investment due to increased economic uncertainty and slowdown in nominal GDP growth

3. Net production and import taxes

- ❑ Net production and import taxes continue to grow at positive levels in 2022 and 2023.
 - Net production and import taxes are projected to increase by 4.6% in 2022 and 5.8% in 2023.
 - Nominal GDP figures in 2022 and 2023 remained mainly unchanged, but in the course of simultaneous slowdowns in imports and exports in 2023, the growth rate of net production and import taxes will rise.
 - (Upward factor) Slowing growth in import tax refunds
 - (Downward factor) Slowdown in import tax growth due to a decline in economic growth rate and slowdown in imports

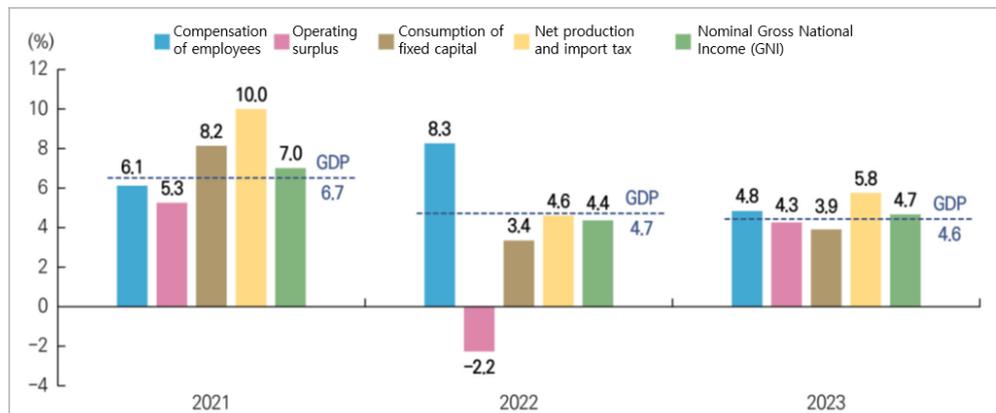
4. Operating surplus

- ❑ Operating surplus will drop by 2.2% in 2022 and rise by 4.3% in 2023.
 - In 2022, operating surplus is forecast to decrease as employee remuneration increases due to favorable employment conditions. In 2023, as additional growth in the job market will likely be limited, the proportion of operating surplus is forecast to rebound.
 - Operating surplus is calculated as a residual after subtracting employee remuneration, fixed-capital consumption, net production, and import tax.

5. Gross National Income (GNI)

- The growth rate of gross national income is forecast to be 4.4% in 2022 and 4.7% in 2023.
- Gross national income is forecast to grow by 4.4% in 2022, slightly lower than the nominal GDP growth rate, and return to a similar level to the GDP growth rate in 2023.
 - This is attributable to the decrease in capital income from abroad among net factor income from abroad in line with lower foreign direct investment and stock investment income due to a decline in the global capital market rate of return.

[Forecasts for GNI and GDP Distribution in 2023]



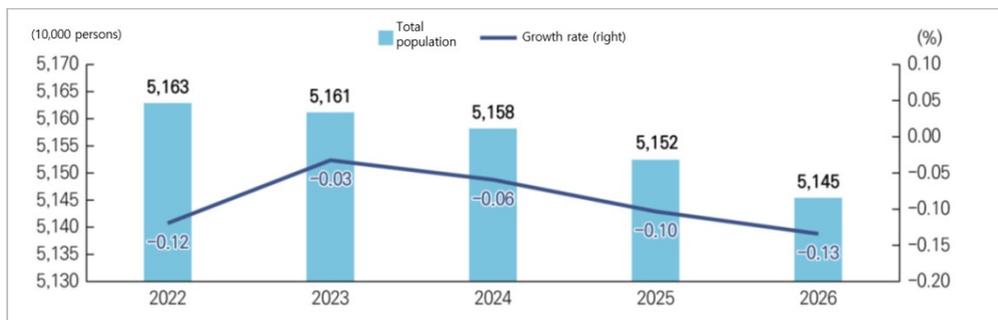
Source: National Assembly Budget Office

III. Population and employment projections

1. Population

- From 2022 to 2026, the population is projected to continue to decline due to the decline in the birth rate.
 - The total population of Korea is projected to drop by -0.11% per year on average between 2022 and 2026 due to continually declining birth rates.
 - The total fertility rate is projected to drop from 0.76 in 2022 to 0.69 in 2026. Despite an increase in life expectancy, a natural decrease in the population is projected, with a higher number of deaths due to an increase in the size of the elderly population.
 - (Upward factor) Expansion of work-family balance culture, expansion of flexible work system
 - (Downward factor) Continued low birth rate, increased mortality rate, and increased net outflow of international population

[Outlook for Total Population and Growth Rate (2022-2026)]

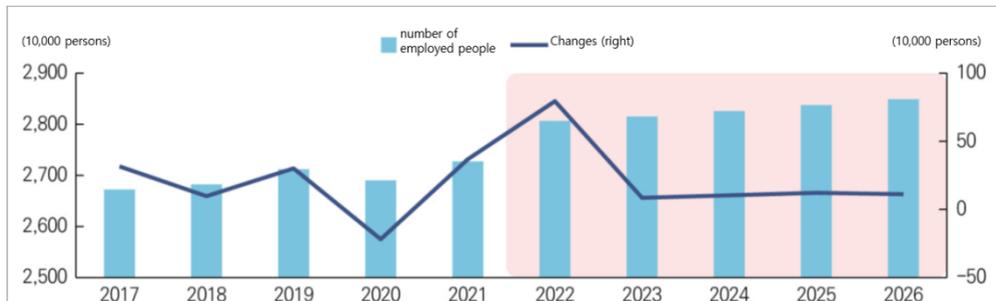


2. Outlook for employment volume

- The number of the employed is forecast to increase significantly in 2022 followed by a slowdown in 2023.
 - The number of the employed is forecast to increase by 795,000 (2.9%) in 2022 and 86,000 (0.3%) in 2023
 - The increase in the number of the employed in 2022 considerably exceeds the correlation between the existing GDP growth rate and the increasing rate of employed, and is likely to affect the increasing rate of employed going forward.
 - The increase in the number of the employed in 2023 will be significantly reduced compared to 2022.
 - From 2024 to 2026, the number of the employed is forecast to record an increase in the low 100,000 range from the previous year.
 - (Upward factor) Normalization of foreign manpower with growth of industries related to non-face-to-face and digital conversion and recovery of face-to-face service industry

- (Downward factor) Base effect of the employment boom in 2022, slowdown in export growth due to global economic slowdown, declining private consumption due to a slowdown in the asset market and a rise in interest rates

[Trends and Outlook for Changes in the No. of the Employed]

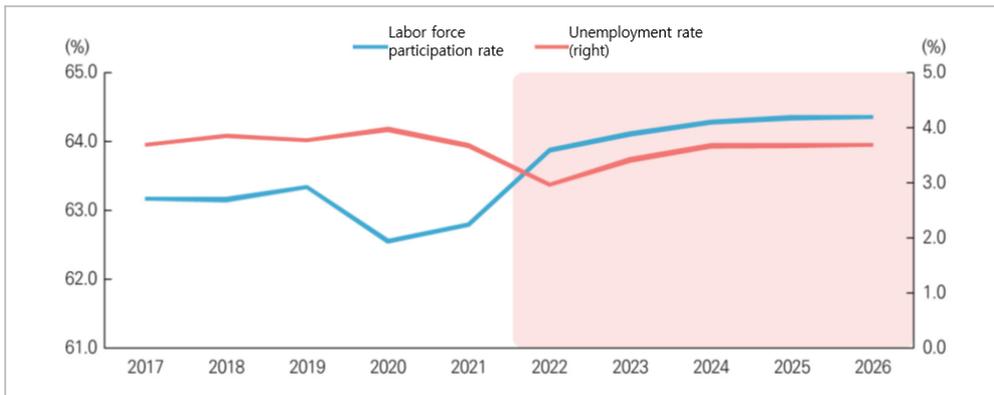


Note: Shaded areas represent projections

Source: National Assembly Budget Office, Statistics Korea

- After a sharp rise in 2022, labor force participation rate will continue to rise gradually in 2023.
 - The labor force participation rate is forecast to record 63.9% in 2022 and 64.1% in 2023.
 - The labor force participation rate also rose significantly (up 1.1%p year-on-year) due to the employment boom in 2022.
 - In 2023, the labor force participation rate is forecast to slow down and record 64.1% (up 0.2%p year-on-year).
 - From 2024 to 2026, the labor force participation rate is forecast to continue a moderate upward trend, reaching 64.4% in 2026.
 - Despite the aging of the population, the overall labor force participation rate is forecast to continue to rise as the labor force participation rate among women and the elderly has risen.
- After recording 3.0% in 2022, the unemployment rate is forecast to gradually rise and converge to 3.7%.
 - The unemployment rate is forecast to record 3.0% in 2022 and 3.4% in 2023
 - In 2022, the unemployment rate is forecast to drop by 0.7%p year-on-year to record 3.0% due to the high increase in the number of the employed.
 - In 2023, the growth rate in the number of the employed will slow down significantly, and the unemployment rate will rise to 3.4% (up 0.4%p year-on-year).
 - The unemployment rate is forecast to remain unchanged at 3.7% between 2024 and 2026.

[Changes in Labor Force Participation Rate and Unemployment Rate and Outlook]

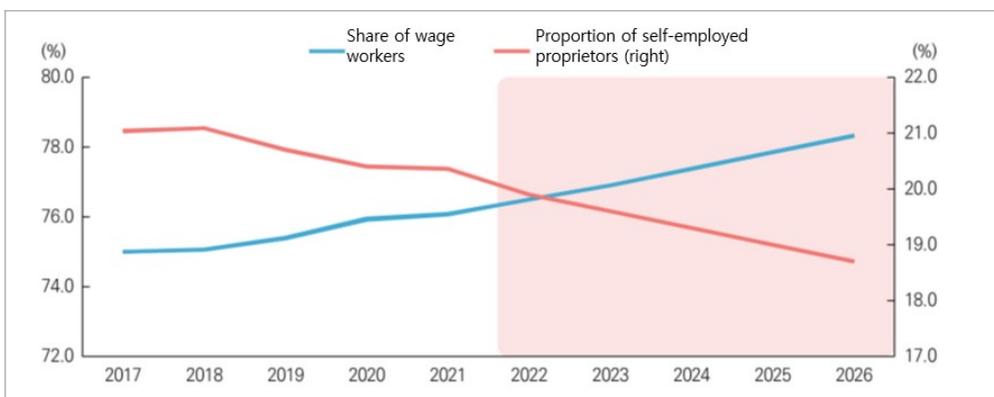


Note: Shaded areas represent projections

Source: National Assembly Budget Office, Statistics Korea

- The proportion of wage earners is forecast to keep rising, whereas the proportion of self-employed proprietors keeps declining.
 - During 2022 to 2026, the average share of wage earners is forecast to be 77.4%, and the share of self-employed proprietors is forecast to be 19.3%.
 - The share of wage earners continues the previous upward trend, rising from 76.1% in 2021 to 78.3% in 2026.
 - The share of self-employed proprietors continues to decline, falling from 20.2% in 2021 to 18.7% in 2026
 - The share of unpaid family workers will drop from 3.7% in 2021 to 3.0% in 2026.

[Changes in Share of Wage Earners and Self-Employed Proprietors and Outlook]



Note: Shaded areas represent projections

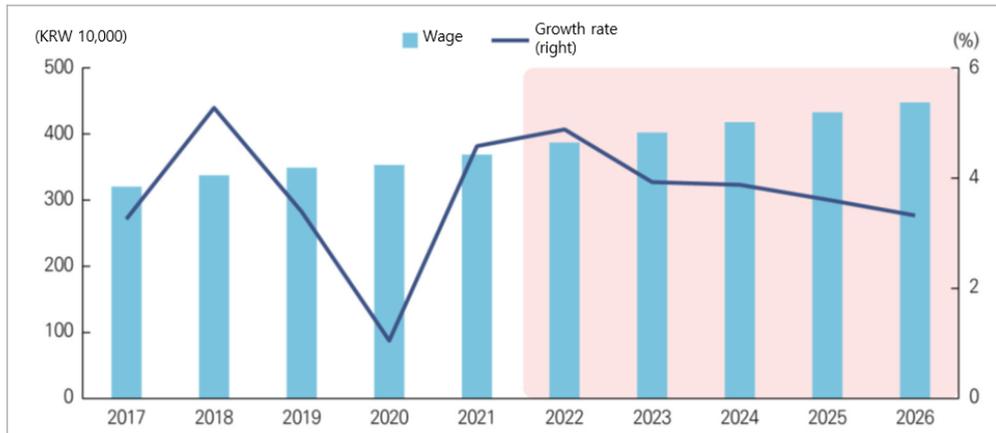
Source: National Assembly Budget Office, Statistics Korea

3. Outlook for wage growth rate

❑ Wages are forecast to rise by 4.9% in 2022, followed by a gradual decline.

- Wage growth rate is forecast to record 4.9% in 2022 and 3.9% in 2023.
 - Wages in 2022 rose by 4.9% year-on-year due to inflationary pressure, despite a drop in labor productivity due to the increase in the number of the employed exceeding the GDP growth rate.
 - In 2023, wages will increase by 3.9% year-on-year due to a slowdown in GDP growth rate, slowing the upward trend.
- In 2024, wages are forecast to increase by 3.9% year-on-year, but the rate of wage increase will continue to decline subsequently, reaching 3.3% in 2026.
- (Upward factor) Increase in labor productivity and high inflation
- (Downward factor) Declining economic growth rate

[Changes in Wage Level and Rate of Increase and Outlook]



Note: Shaded areas represent projections

Source: National Assembly Budget Office, Ministry of Employment and Labor

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국회에산정책처



Part I

Gross National Income and Distribution Structure

N a t i o n a l A s s e m b l y B u d g e t O f f i c e

Part I. Gross National Income and Distribution Structure

Chapter 1. National Income



Section 1. Overview

In understanding a country's economic level, it is necessary to be able to compare time series changes according to the growth of the economy and between countries. Therefore, S. Korea uses national income statistics based on the System of National Accounts (SNA) jointly prepared by international organizations such as the UN.

National income statistics measure all economic transactions in the national economy for a year in terms of production, income distribution, and expenditure, and the national income according to the measurement method is the same according to the 'principle of equivalence of three aspects of national income'. These national incomes are called production national income, national income distribution, and expenditure national income, respectively. Production national income and expenditure national income, measured using monthly economic indicators, are announced quarterly in the next quarter so that changes in economic conditions can be understood as quickly as possible. In contrast, given that distributed national income records the distribution of value-added for the year to economic operators such as households, corporations, and the government, it is only announced as annual statistics without classifying income by quarter. Therefore, only ex post statistics have been used for national income distribution in economic forecasts. However, given that the ultimate goal of economic policy is to improve the quality of life of citizens, it is highly important for income indicators to identify the income distribution among economic operators. The reason is that income provides a comprehensive look at the quality of life on an economic basis. In setting inclusive growth as a new policy framework, the OECD advocated an economic policy that considers rational and sustainable income distribution among economic operators.¹⁾

Accordingly, with the 2023 economic outlook, the National Assembly Budget Office aims to provide forecasts of national income statistics with a comprehensive perspective through forecasts of national income distribution, gross national income (GNI), gross national income per capita, which can confirm changes in the income level per capita, as well as population and employment figures.

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1) OECD, *Opportunities for All: A Framework for Policy Action on Inclusive Growth*, 2018

Section 2. Structure of Distributed National Income

Distributed national income corresponds to gross domestic product (GDP) using the income approach, and is comprises employee remuneration, operating surplus, fixed-capital consumption, net production, and import tax. The components of distributed national income reveal the distribution of added value produced for the year to labor, business, fixed capital, and government. Labor participates in production and the share received is allocated as the wages and salaries of employees in compensation and social contributions incurred by the employer. Production capital is consumed or expended in production activities, which is called fixed-capital consumption. The government authority levies product and import taxes at each stage of production of intermediate goods and final goods, and since it is reflected in the market price GDP, it corresponds to the government's share in production activities. As such, the residual after deducting the share of labor, capital, and government from total added value corresponds to the portion distributed to companies, which are the main operators of production activities, and is referred to as operating surplus. The forecasts of national income distribution can also provide an important baseline for fiscal authorities. The reason is that employees' compensation and operating surplus, which are components of national income distribution, serve as the basic data for tax base projections. The trend of distribution of labor share in gross national income can be confirmed using forecasts of employees' compensation, while operating surplus can be used as a supplementary indicator to project the corporate tax base, which is difficult to ascertain a consistent total amount indicator. In addition, employment and population projections are provided as basic data for major economic indicators. For example, the labor force participation rate serves as basic data for forecasting national pension subscribers and recipients, with the number of wage earners being used to forecast the number of long-term income taxpayers. Population projections can be used to determine income per capita based on projections of fertility rates.

[Table I-1] Composition of Distributed National Income

Distributed national Income	Description	Distributed income expenditures
Employees' compensation	Wages & salaries Employer-paid social contributions	Current tax (government), private consumption, savings (investment)
Operating surplus	Surplus of incorporated & unincorporated enterprises generated in the production process	Interest, dividend & rent (household), current tax (government), savings (investment)
Fixed-capital consumption	Decrease in value of fixed assets used in production activities	Inner reserve (capital)
Net production & import tax	A tax levied on the production, sale or use of goods & services	Government consumption, transfer expenditure (household), savings (investment)

Source: National Assembly Budget Office

Section 3. Outlook for Gross National Income

National income distribution is based on domestically produced income, whereas gross national income (GNI) is calculated by adding the net income earned by Korean expatriates abroad. Therefore, gross national income is the most accurate indicator of the average annual income earned by Korean nationals, and gross national income per capita, which is obtained by dividing GNI by the total population, is an economic indicator that can confirm the improvement of individual citizens' purchasing power.

In other words, to understand the stable increase in household income, the distribution situation among economic operators must be taken into account using national income distribution, while gross national income can provide a baseline. In addition, since 2010, the share of net factor income from abroad has increased, making a stable contribution to gross national income. Thus, keen attention should be paid to foreign trade in goods and services as well as foreign trade in factors of production.

[Table I-2] Gross National Income and GDP

- Nominal gross national income (GNI: Gross national income)

$$\text{GNI ((nominal))} = \text{GDP((nominal))} + \text{Net factor income from abroad (nominal)}$$

Classification	Employees' compensation	Operating surplus	Net production and import tax	Fixed-capital consumption	Net factor income from abroad
National income distribution (GDP)					
Gross national income (GNI)					
National Income (NI)					

Source: National Assembly Budget Office

GDP using the production and expenditure approach calculates the rate of change using real statistics with values fixed in the base year to identify the net change in value. As distributed national income is pivotal in revealing the distribution of added value in the year, only the nominal value is used. Thus, the forecasts of national income distribution in this report are all nominal.

Chapter 2. Trends by Distribution Component

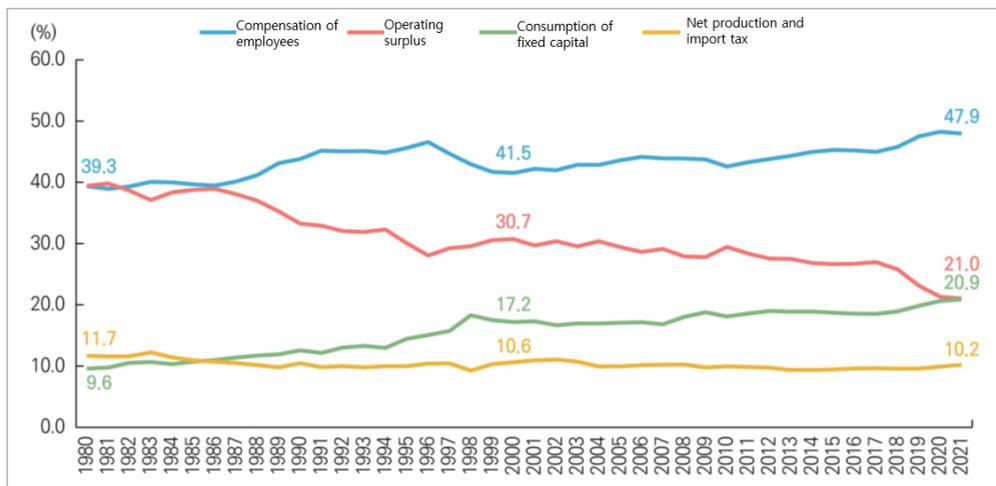


Section 1. Trends in National Income Distribution

- Ratio of compensation of employees to GDP = Proportion of labor income
Wages and salaries, employer-paid social contributions
- Ratio of operating surplus to GDP = Proportion of corporate income, which is the main body of production activities
- Surplus of incorporated and unincorporated enterprises generated in the production process

As distributed national income is pivotal to identifying the share of income earned through production distributed to economic operators, changes in the composition ratio are reviewed as a major trend. In 1980, the proportions of employees' compensation and operating surplus were similar at 39.3% and 39.4%, respectively. However, the proportions of employees' compensation and fixed-capital consumption gradually increased, while the proportion of operating surplus decreased.

[Figure I-1] Changes in Composition of National Income Distribution



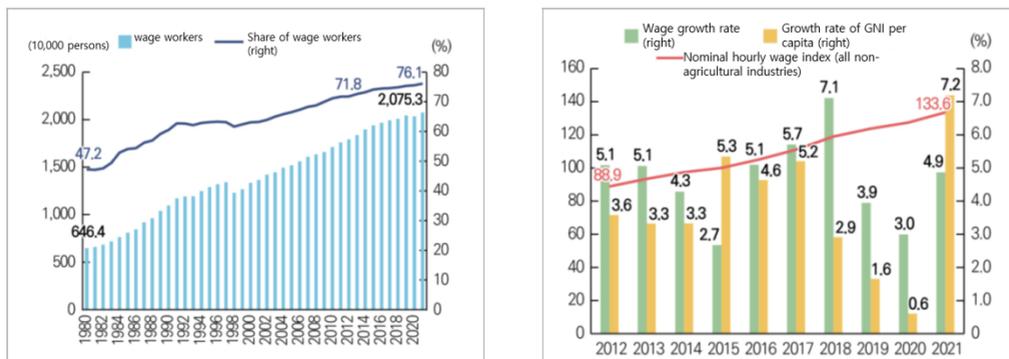
Source: The Bank of Korea

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Between 1980 and 2021, employees' compensation increased by 8.6%p from 39.3% to 47.9%, while operating surplus decreased by 18.5%p from 39.4% to 20.9%. For the same period, the fixed-capital consumption, which is income distributed to fixed capital, increased by 11.4%p from 9.6% to 21.0%, denoting a major increase in its share in the economy. In contrast, net production and import tax, which corresponds to the government's income, decreased by 1.5%p from 11.7% to 10.2%, respectively.

The increase in the share of employees' compensation indicates that the share of wage earners in the composition of economic activities has increased and the number of self-employed proprietors has decreased, with this trend continuing in the long term. The number of wage earners increased 2.5 times from 6.46 million in 1980 to 22.81 million in 2021, which is a large increase compared to a 1.1-fold increase in the total number of the employed from 13.68 to 27.27 million. As a result, the share of wage earners among the total employed people rose from 47.2% to 76.1%. In the recent decade, the rise in nominal wages has also contributed to the increase in employees' compensation. While national income has increased by 43.9% since 2012, the nominal wage index for all industries excluding agriculture has increased by 50.3% from 88.9 in 2012 to 133.6 in 2021. Even when comparing the growth rate of the nominal wage index to the growth rate of GNI per capita, the nominal wage growth rate was high for 8 out of 10 years. For the same period, the share of wage earners increased by 4.3%p from 71.8% in 2012 to 76.1% in 2021, and also had an impact.

[Figure I-2] Changes in the No. of Wage Earners and Nominal Wage Index



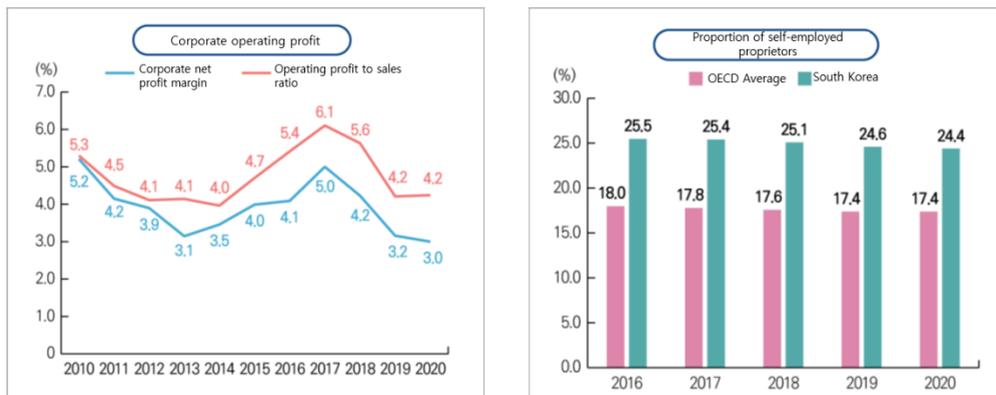
Source: The Bank of Korea, Statistics Korea

The proportion of operating surplus is declining in a long-term trend. This is the result of a combination of the effects of a decrease in the proportion of self-employed proprietors and a decrease in the profitability of manufacturing and financial companies. Operating surplus refers to the pre-tax profit of companies and self-employed proprietors, which are the main operators of production activities.

In this case, companies include not only manufacturing companies, but also financial and insurance companies, or all economic operators that have a role to play as businesses. Self-employed proprietors involve an economic entity that plays the role of a business, and based on the trend of the last 10 years, the proportion of self-employed proprietors decreased by 3.9%p from 28.3% in 2011 to 24.4% in 2021.²⁾ A decrease in the proportion of self-employed proprietors causes a decrease in operating surplus as mixed income included in operating surplus is changed to employees' compensation.

Also, corporate profitability indicators have recently declined, as the profitability of for-profit corporations other than the financial and insurance industries being on a recent downward trend according to 「Corporate Management Analysis」 published by The Bank of Korea. The operating profit to sales ratio, which compares operating profit to sales, fell 0.3%p from 4.5% in 2011 to 4.2% in 2020. In addition, the corporate net profit margin, which is the ratio of net profit after deducting corporate tax and the total amount of financial expenses compared to total capital, represents the comprehensive final performance of the total capital invested in the company, along with a greater drop in net profit margin from 4.2% in 2011 to 3.0% in 2020.

[Figure I-3] Corporate Operating Profit and Proportion of Self-Employed Proprietors



Note: Corporate management analysis targets for-profit corporations other than the financial and insurance industries.

Source: The Bank of Korea, Statistics Korea

However, changes in the share of employees' compensation and operating surplus cannot be interpreted as the distribution of labor and corporate profits. The reason is that the composition ratio of households, capital, and companies, which are economic operators participating in production activities, has also changed, and operating surplus includes a portion of labor. As summarized in the table below, since employees' compensation includes only the labor income of all economic operators, it can be interpreted as labor income. However, employees' compensation does not mean total labor income.

2) Since the proportion of self-employed proprietors based on income is not reflected in separate statistics, employment statistics are used to check trends. The OECD standard is applied to the proportion of self-employed proprietors in this report.

The reason is that employees' compensation is the income of wage earners. The labor income of self-employed proprietors is included in operating surplus.

Operating surplus includes mixed income including income of self-employed households. Non-profit organizations that serve the government and households can also generate operating surplus, but since it is negligible or close to zero, operating surplus corresponds to the income of corporations (companies) and households (self-employed proprietors). In addition, given that the scope of the corporation is comprehensive and also includes income from all activities of the corporation, excluding labor income, such as production, management, and investment activities, operating surplus is income with a large scope.

[Table I-3] Comparison of Income from Employees' Compensation and Operating Surplus

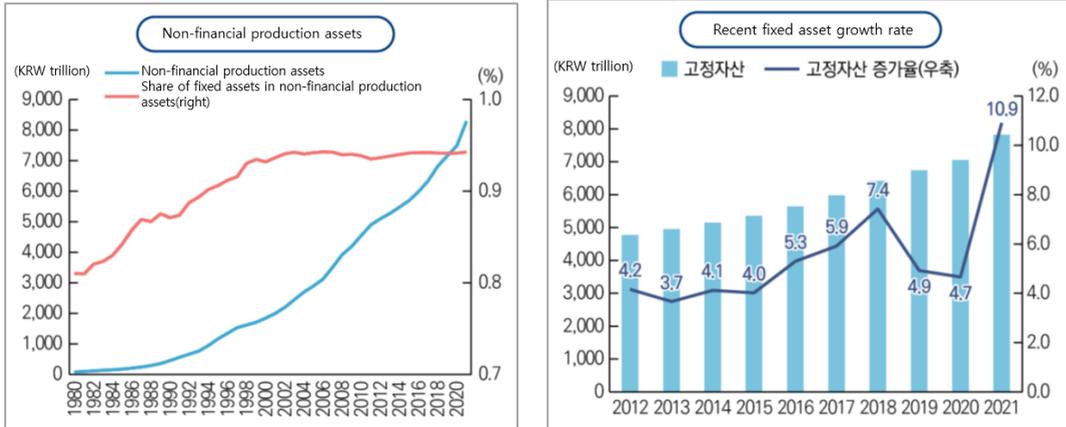
Income generation account	Corporation	Government	Households & non-profit organizations	
			Households	Non-profit organizations serving households
Employees' compensation	Labor income	Labor income	Labor income	Labor income
Operating surplus	Capital income, mixed income	△	Mixed income	△

Note: △ means negligible (or 0)

Source: Organized by National Assembly Budget Office using data from The Bank of Korea

Since fixed-capital consumption refers to the value of fixed capital expended in production activities in a year, the size and proportion increase as production activities become more capital-intensive. As S. Korea's economic structure shifts from a labor-intensive industry to a capital-intensive industry, the proportion of fixed-capital consumption is increasing. To confirm this, the proportion of fixed assets among non-financial production assets was checked. The asset stock has shown a steep increase since 1980, while the share of fixed assets among non-financial production assets has increased rapidly. Fixed assets account for a majority of non-financial production assets, rising from 81.0% in 1980 to over 94.0% after 2000. This infers that the input to production of non-financial production assets is high. Notably, the increase rate of fixed assets was around 20% before 2000 and exceeded the GDP growth rate even in the last five years.

[Figure I-4] Changes in Asset Stock



Source: The Bank of Korea, Statistics Korea

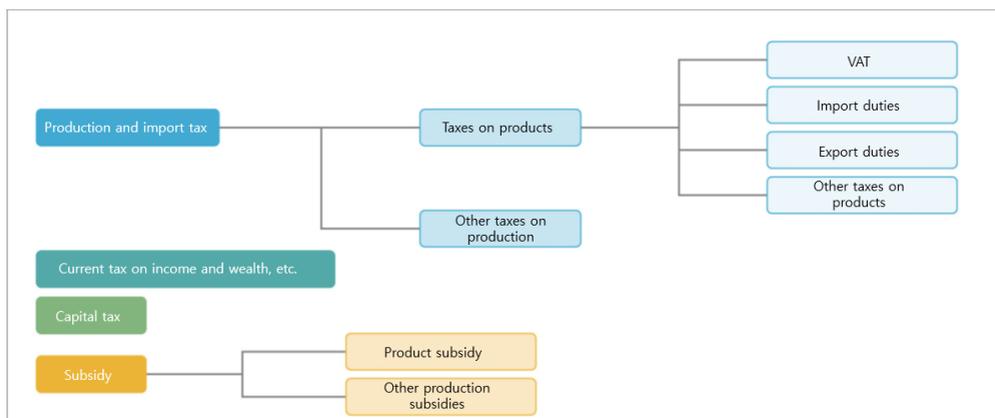
Net production and import taxes are taxes on production and imports³⁾ minus subsidies⁴⁾ and can be viewed as the government's share of production activities, while the share of net production and import taxes decreased by 1.5%p from 11.7% in 1980 to 10.2% in 2021.

Taxes comprise net production and import taxes, current taxes on income and wealth, and capital taxes. Thus, a decrease in the share of production and import taxes infers that the share of current taxes and capital taxes on income and wealth is increasing, while the share of indirect taxes is decreasing.

3) The system of national accounts uses the term production and import tax instead of indirect tax, which is attributed to the fact that it is difficult to determine who actually bears various taxes and that the term of indirect tax is not often used in economics. Production and import taxes are taxes levied on the production, sale or use of goods and services and consist of product taxes and other production taxes. Production tax is a tax levied on goods or services when a producer produces, delivers, sells, transfers, or otherwise uses the goods or services. Other production taxes include taxes on the ownership or use of land, buildings and other assets used in production, and taxes on employed labor force and employees' compensation.

4) Subsidies are given by the government that bears part of the production cost of producers, such as oil price subsidies for public transportation companies and subsidies for coal production.

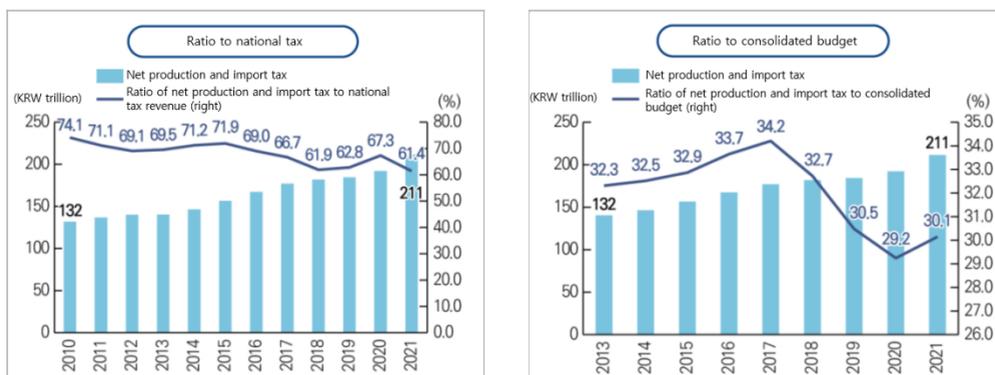
[Figure I-5] Tax and Subsidy Classification System for National Accounts



Source: The Bank of Korea

The share of net production and import tax in national tax decreased significantly from 74.1% in 2010 to 61.4% in 2021, and the share in consolidated finance decreased slightly from 32.3% in 2013 to 30.1% in 2021.⁵⁾ Considering that the government's fiscal expenditure has continuously increased, it is confirmed that the government's tax revenue increased centering on the current tax on income and wealth and the capital tax.

[Figure I-6] Net Production and Import Tax and Gross Income



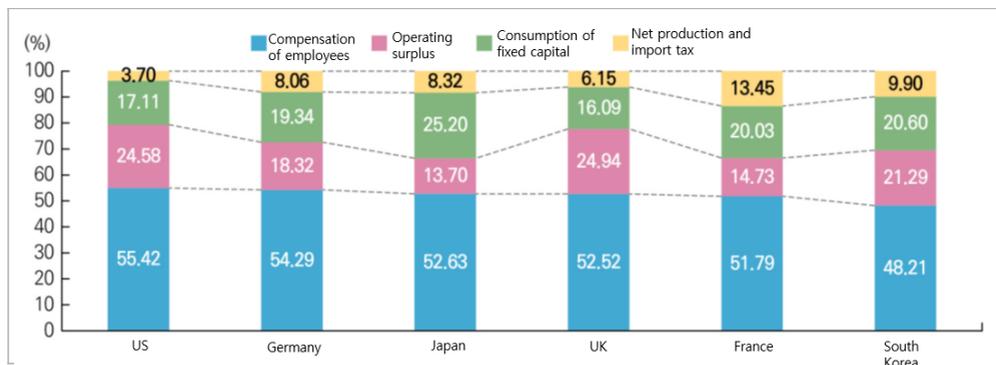
Source: The Bank of Korea, Statistics Korea

5) Since net production and import taxes include not only national taxes but also local taxes, a more accurate comparison is to look at the ratio compared to the consolidated budget.

Structure of National Income Distribution in Major Countries

Comparing the distributed national income structure of major countries as of 2020, in S. Korea, the proportion of employees' compensation is the smallest (48.2%), and the proportion of fixed-capital consumption (20.6%), net production and import tax (9.9%), and operating surplus (21.3%) is large. In the U.S., where the proportion of self-employed proprietors is small and the proportion of wage earners is high, the proportion of employees' compensation is high at 55.4%, but operating surplus is the highest at 24.6%. Germany has the second highest proportion of employees' compensation after the U.S. at 54.3%, but its operating surplus is low at 18.3%. Japan also has a higher level of employees' compensation at 52.6% than S. Korea, and high fixed-capital consumption at 25.2%.

[Figure I-7] National Income Distribution Structure of Major Countries (as of 2020)

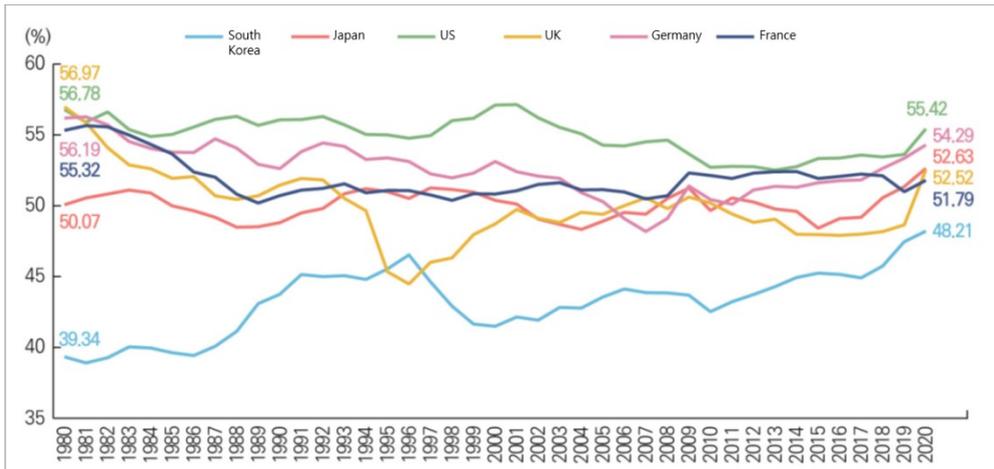


Note: Calculated by deducting the fixed-capital consumption in the case of countries that announce the sum of operating surplus and fixed-capital consumption

Source: OECD statistics (<https://stats.oecd.org/index.aspx?queryid=60702>)

Comparing the proportion of employees' compensation and operating surplus with those of major countries over a long-term time series reveals more distinctive changes in S. Korea's national income distribution. Compared to the U.S., Germany, Japan, France, and the UK, most countries show a downward trend in the long term, but an upward trend over the past five years. In particular, the increase in employees' compensation in the U.S., Japan, and Germany was remarkably observed. The proportion of employees' compensation in S. Korea is also showing a rapid increase, but it is still low as of 2020.

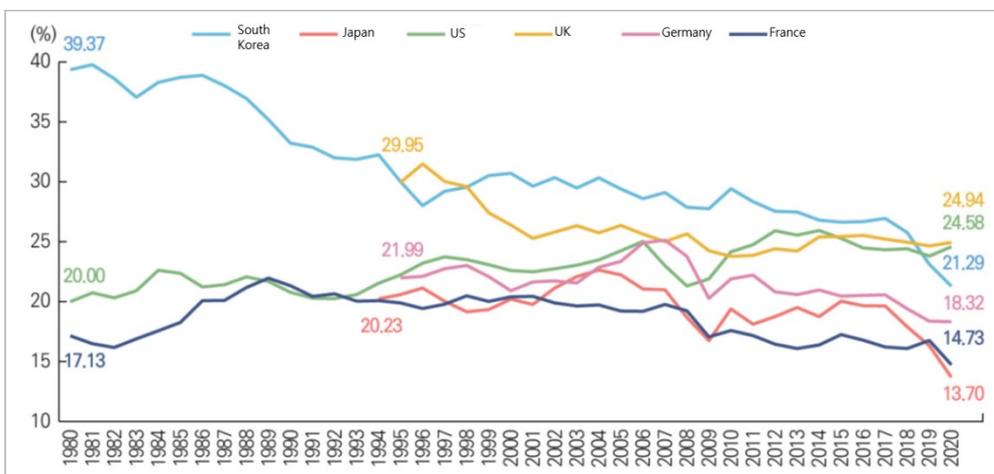
[Figure I-8] Proportion of Employee's Compensation to GDP in Major Countries



Source: OECD statistics (<https://stats.oecd.org/index.aspx?queryid=60702>)

The share of operating surplus, which is the income of corporations and self-employed proprietors, is gradually declining, and the rate of decline has been high recently. In 2020, the damage to companies and self-employed proprietors was relatively greater due to factors such as COVID-19, but there was a gradual downward trend even before that. It is also possible to interpret the decrease in operating surplus and the increase in the proportion of employees' compensation as an increase in the share of labor relative to companies. However, since employees' compensation does not include the labor income of self-employed proprietors, and the operating surplus includes the share of those self-employed and capital, it is necessary to comprehensively consider the industrial structure and asset distribution of each country when making a comparison.

[Figure I-9] Proportion of Operating Surplus to GDP

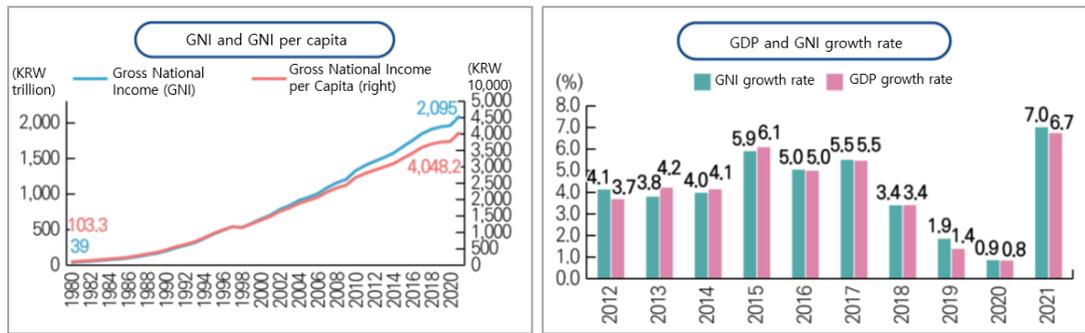


Source: OECD statistics (<https://stats.oecd.org/index.aspx?queryid=60702>)

Section 3. International Comparison of Gross National Income

Gross national income has increased in line with nominal GDP. Notably, over the past three years, the growth rate of GNI has been slightly higher than the growth rate of GDP.

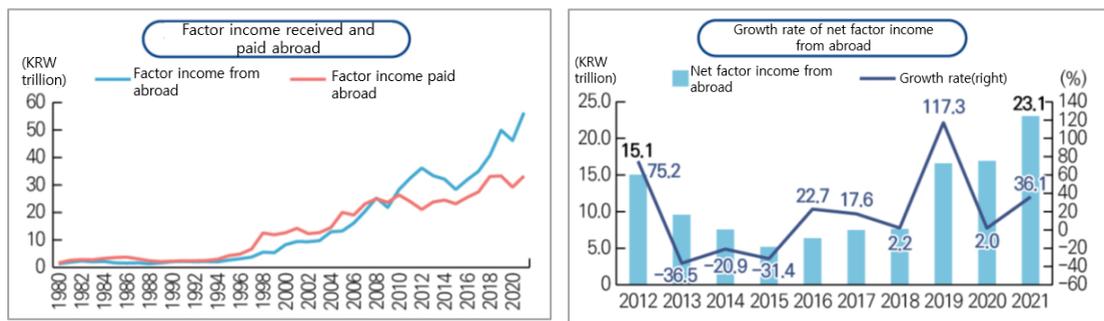
[Figure I-10] Gross National Income and Gross National Income per Capita



Source: The Bank of Korea

The difference between GDP and GNI appears only in net factor income from abroad because factor income from abroad has increased significantly over the past three years, resulting in a large increase in net factor income from abroad. Foreign factor income is similar to the fact that the share of net exports in expenditure national income is much smaller than the respective values of exports and imports. Since only the difference between income earned abroad and income paid is taken into account, the receipt is displayed as a smaller value than the respective value levels. However, given an expanding domestic economy, foreign investment by domestic capital becomes more active, with foreign investment in the domestic capital market increasing, the importance of foreign factor income as an economic indicator may increase as well.

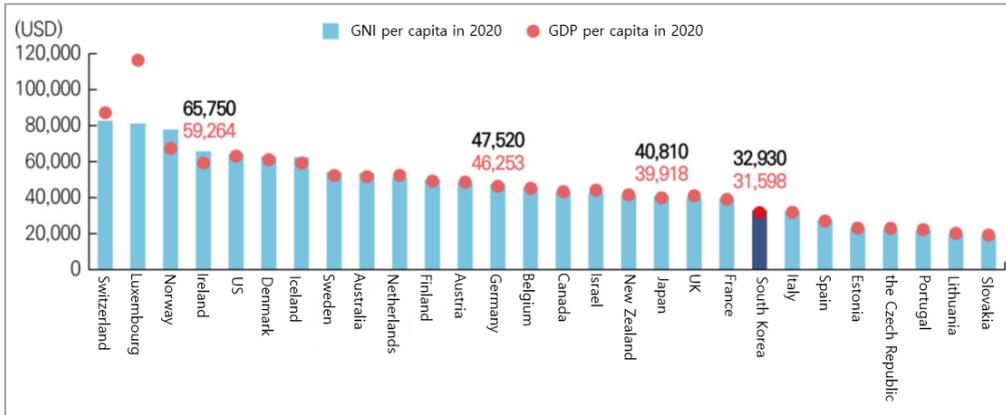
[Figure I-11] Growth Rate of Net Factor Income from Abroad



Source: The Bank of Korea

Since GNI per capita is used in the international community to determine the economic purchasing power of Korean nationals, the dollar denomination is generally used. In 2020, S. Korea's GNI per capita was USD32,930 (nominal), ranking 21st among the OECD countries. This is slightly higher than the 24th place in the GDP per capita ranking, which indicates that S. Korea has a relatively large share of net factor income from abroad. Similarly, Japan's GNI per capita was USD40,810 and GDP was USD39,918.⁶⁾

[Figure I-12] GNI and GDP per Capita by OECD Country (2020)



Note: In 2020. Nominal.

Source: The World Bank

6) Ireland has many multinational corporations for reasons such as tax avoidance, and there are large-scale intellectual property assets of foreign-owned companies and large-scale asset holdings of leased aircraft. Since most of the value produced by holding these assets is outflowed, it has little to do with Ireland's domestic demand, and there is a distortion in the national income (GNI) economic statistics. For this reason, the Central Bank of Ireland is preparing alternative statistics (adjusted GNI).

Chapter 3. Population and Employment Trends

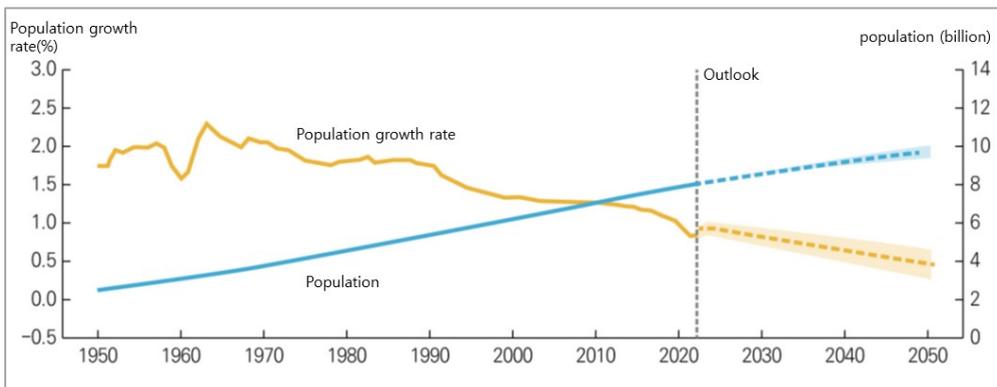


Section 1. Population Trends

- **Population shift factors** = Birth, death, international migration
 - The population size of a country is determined by births, deaths, and international migration. According to the UN's World Population Prospects, the population size is increasing, but the population growth rate is slowing down.
 - While the fertility rate of high-income countries (GNI per capita of USD13,000 or more) is below the population replacement rate (total fertility rate of 2.1 persons), international population migration acts as a major factor in maintaining population size.

Population is a basic factor of production that provides the labor force required for production, and as a subject of consumption, it is a major factor influencing economic activities. According to the UN's World Population Prospects (2022), the global population is projected to increase steadily from about 7.91 billion in 2021 to 9.7 billion in 2050, but the population growth rate has slowed down, falling to less than 1% from 2020, and is projected to keep slowing through 2050.⁷⁾

[Figure I-13] UN World Population Size and Population Growth Rate Projections



Source: UN (2022), World Population Prospects 2022

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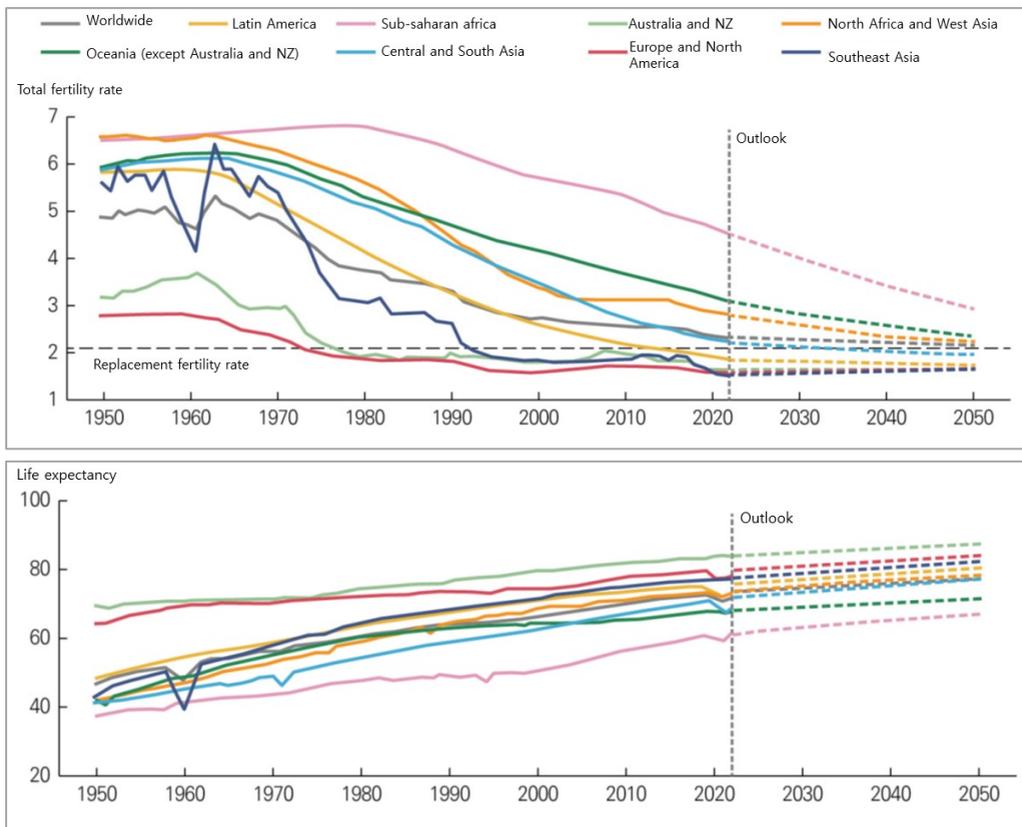
Yoo Geun-sik, [economic analyst \(gsyoo@assembly.go.kr\)](mailto:gsyoo@assembly.go.kr), 6788-4753)

7) UN (2022)

The size of a country's population is determined by births, deaths, and international migration. As life expectancy has increased and mortality has decreased due to advances in medicine, it is acting as a positive factor in the population growth rate, but as fertility rates drop significantly, world population growth is slowing significantly

Global life expectancy averaged 63 years in 1990, but reached 72.8 years in 2019 (dropped to 71.0 years in 2021 due to COVID-19 impacts), and in 2050, the average life expectancy is projected to reach about 77.2 years.⁸⁾ In comparison, the global total fertility rate is projected to drop from 3.3 in 1990 to 2.3 in 2021 and 2.1 in 2050.

[Figure I-14] Total Fertility Rates and Life Expectancy Projections by Continent

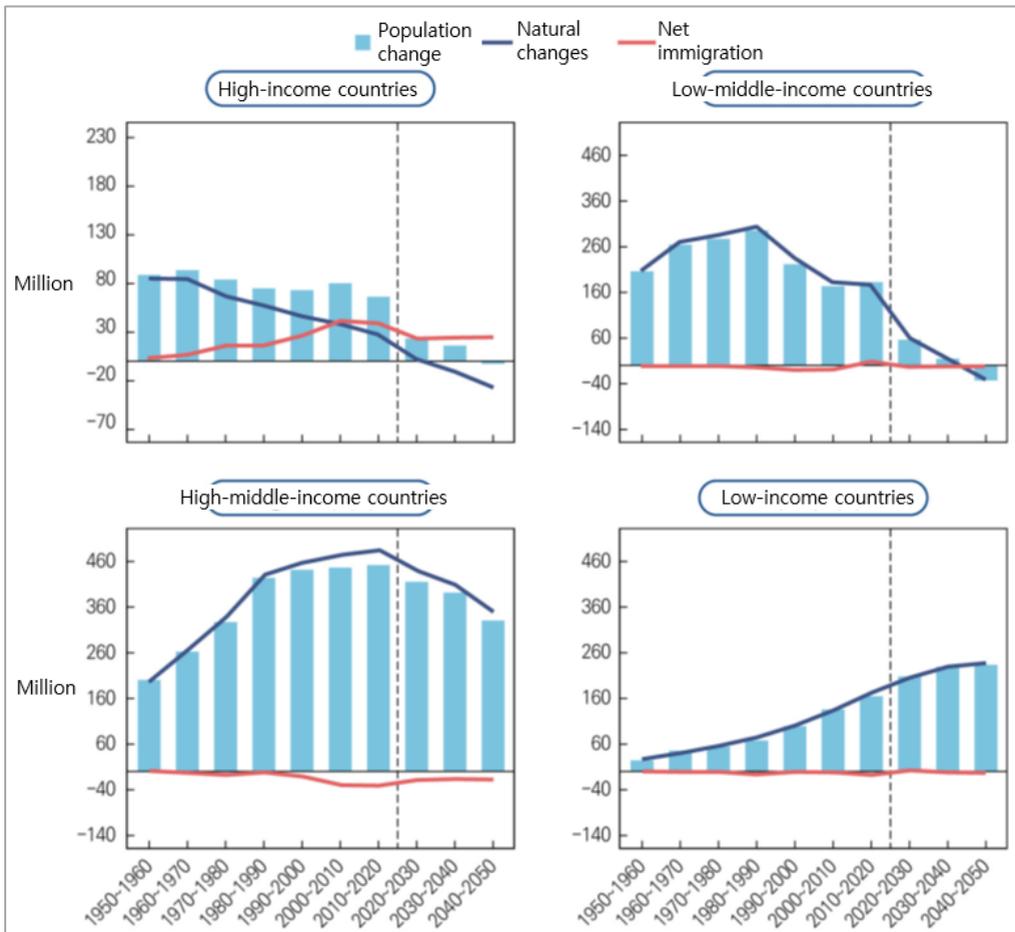


Source: UN's World Population Prospects 2022

8) The global average life expectancy has improved significantly, but there are large differences by country and gender. Life expectancy in the poorest countries in 2021 is 7 years less than the global average, with life expectancy for men lower than for women across all continents and countries. Life expectancy for men in Latin America is 7 years lower than for women, whereas in Australia and New Zealand the difference is only 2.9 years. (UN, 2022)

However, there are differences in population fluctuations by country. Since low-income countries maintain relatively high fertility rates, natural population growth (birth-mortality ratio) is positive (+), with continuing population growth. However, high-income countries show natural population decline (birth-mortality ratio is negative (-)), but the population size is maintained due to net population inflow (immigration, etc.). In the past, it was not easy to move between countries due to institutional restrictions on immigration, etc. However, international migration is becoming an important factor in population shifts in some countries as efforts to secure global human resources have expanded due to the influence of globalization and population movement has become smoother.

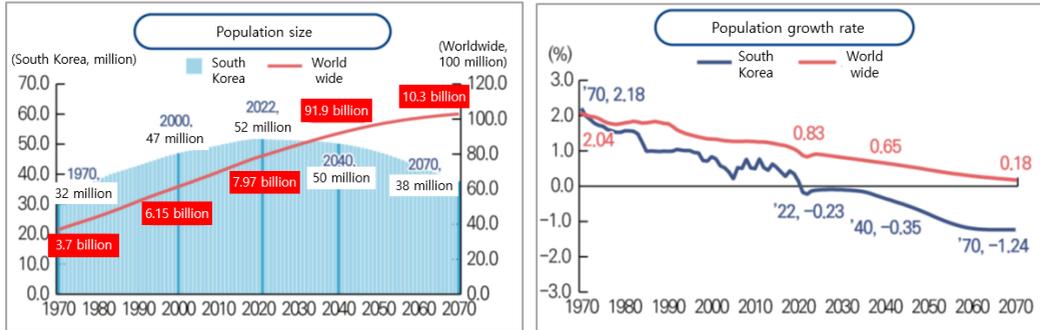
[Figure I-15] Projections for Population Change by Income Level



Source: UN (2022), World Population Prospects 2022

The population size of S. Korea increased from 25.01 million in 1960 to 51.84 million in 2020, but the population growth rate continued to decline from 2.97% in 1961 to 0.14% in 2020. The National Statistical Office (2021) predicted that the population growth rate would turn negative (-) after 2021, and the population would continue to decline subsequently, resulting in a total population of 38 million in 2070. Korea's population is on a declining trend, while the UN's world population is projected to keep increasing until 2070, despite a slowing rate of increase.⁹⁾

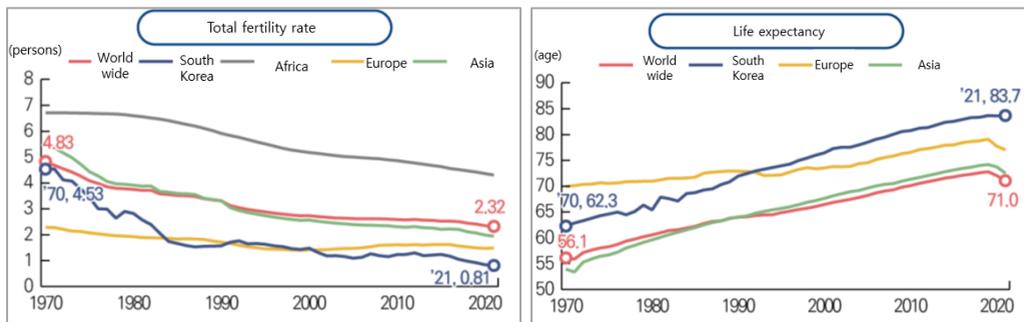
[Figure I-16] Comparison of Population Prospects Globally and in S. Korea



Source: Statistics Korea (2022)

Looking at the causes of this slowdown in the population growth rate by population shift factor, the decrease in the birth rate is the biggest factor. The reason is that the world's total fertility rate in 2020 is 2.32, while Korea's total fertility rate is only 0.84. Meanwhile, S. Korea's life expectancy is 83.5 years in 2020, which is higher than the world (72.0 years).¹⁰⁾

[Figure I-17] Trends in Total Fertility Rates and Life Expectancy Globally and in S. Korea



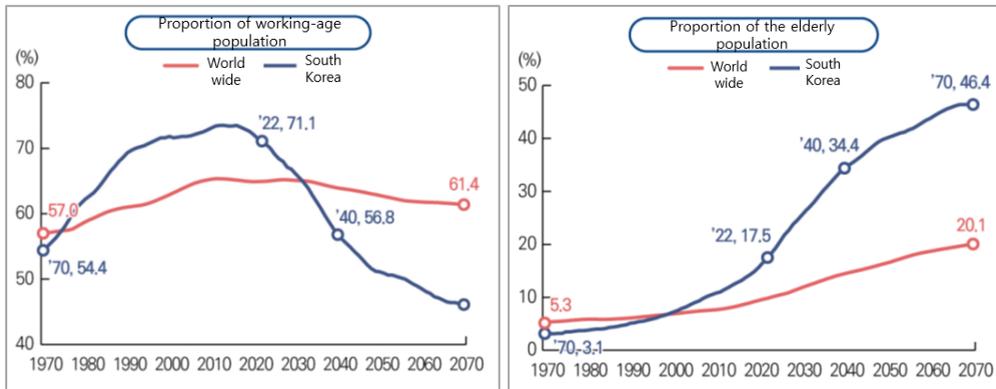
Source: Statistics Korea (2022)

9) Statistics Korea, 「Future Population Estimate: 2020~2070」 press release, 2021.12.9.

10) Statistics Korea, 「Status and Prospect of Population Globally and in S. Korea Reflecting Future Population Estimates in 2021」, 2022.9.5.

S. Korea's working-age population is projected to decline from its peak in 2012 (73.4%) to 56.8% in 2040 and 46.1% in 2070. However, the world's working-age population is projected to remain above 60% by 2070. In addition, S. Korea's elderly aged population ratio is projected to rise significantly from 17.5% in 2022 to 46.4% in 2070, whereas the global elderly aged population ratio is projected to increase from 9.8% in 2022 to 20.1% in 2070. Therefore, it is projected that S. Korea's population aging will proceed much more rapidly than that of the world.¹¹⁾

[Figure I-18] Proportion of Working-Age Population and Elderly Population Globally and in S. Korea



Source: Statistics Korea (2022)

11) Statistics Korea, 「Status and Prospect of Population Globally and in S. Korea Reflecting Future Population Estimates in 2021」, 2022.9.5.

Section 2. Employment Trends

- A gradual recovery in **employment in major countries** from the employment shock of COVID-19 has gained ground since the second half of 2021.
 - The number of employed people in S. Korea declined significantly in 2020 due to the spread of COVID-19, then recovered to the pre-COVID-19 peak level after October 2021.
 - The number of employed people in the EU and OECD countries returned to pre-COVID-19 levels in the second half of 2021 and the first half of 2022.
 - However, in the case of the U.S., it recovered to pre-COVID-19 levels in August 2022, whereas Japan has yet to recover to pre-COVID-19 levels.
- **In the first half of 2022, the number of employed people in major countries is showing a high level of increase, and the unemployment rate is also good.**
 - In particular, there is a noticeable increase in the number of employed people in S. Korea and the U.S.

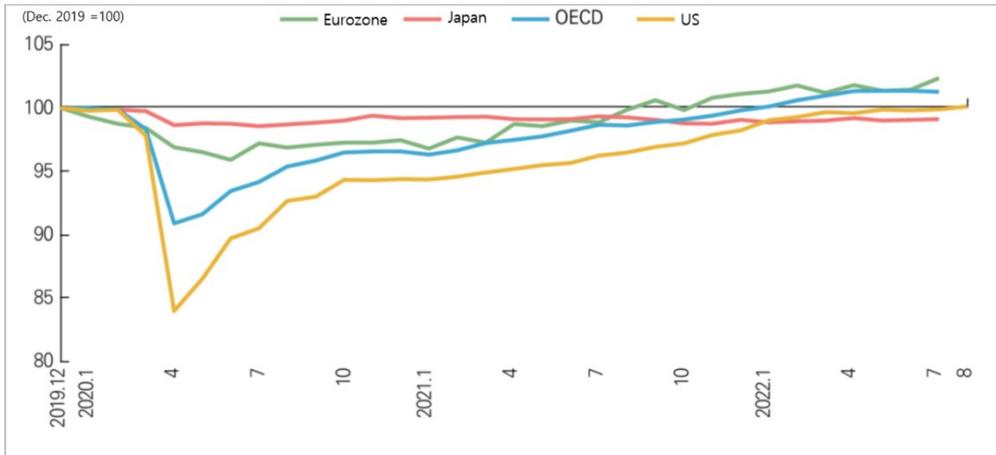
1. Overseas employment trends

In 2020, the spread of COVID-19 caused a global employment shock. The figure below shows the process of recovery after the significant deterioration in employment due to the impact of COVID-19 in 2020 through changes in the number of the employed in major countries. After the outbreak of COVID-19, the number of the employed (seasonally adjusted) in the OECD fell to 90.9% of the level just before COVID-19 (December 2019) in April 2020, resulting in a global employment shock. In particular, the number of the employed in the U.S. fell to the level of 84.0% just before COVID-19, which marked the highest level of shock.

However, employment has gradually recovered since hitting a low due to COVID-19, while the job market in some major countries seems to have recovered from the employment shock of COVID-19 as of the second half of 2021. As of the second half of 2021 or the first half of 2022, the number of the employed in the EU and OECD has increased to a higher level than right before COVID-19. However, the U.S., which had the largest employment shock, has returned to the level before COVID-19 only in August 2022, whereas employment in Japan is still at a lower level than before COVID-19.

As the country rebounds from the shock of COVID-19, a high level of employment growth is occurring. In the first half of 2022, the number of the employed in the U.S. increased by 2.4% quarter-on-quarter. For the same period, the number of the employed in the EU and OECD countries increased by 1.3% and 1.9%, respectively.

[Figure I-19] Changes in the No. of the Employed in Major Countries



Post-COVID-19

Source: OECD (2022), OECD Employment Outlook 2022

[Table I-4] Employment Growth Rate in Major Countries (seasonally adjusted, quarter-on-quarter)

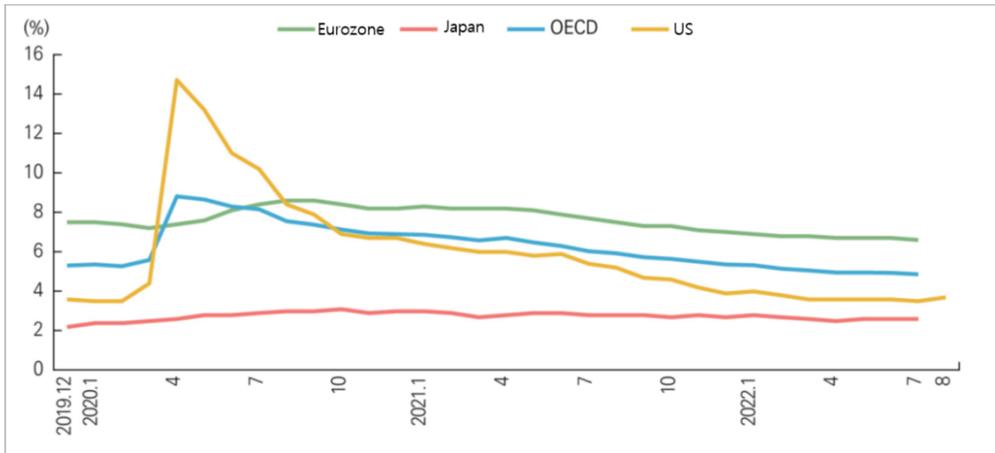
	US	EU	OECD	Japan
Employment growth rate in the first half of 2022 (%)	2.4	1.3	1.9	0.0

Note: Based on seasonal adjustment

Source: OECD (2022), OECD Employment Outlook 2022

As of the first half of 2022, the unemployment rate (seasonally adjusted) is also deemed to be at a manageable level. In the first half of 2022, the unemployment rate in the EU and OECD countries recorded 6.8% and 5.1%, respectively, down by 0.7%p and 0.2%p, from the pre-COVID-19 period. In the U.S. and Japan, unemployment rates continue to be slightly higher than before COVID-19, but these two countries also have very low unemployment rates close to the natural unemployment rate (unemployment rate in the first half of 2022 (seasonally adjusted): U.S. at 3.7%, Japan at 2.6%).

[Figure I-20] Changes in Unemployment Rates in Major Countries since COVID-19 Outbreak (seasonally adjusted)

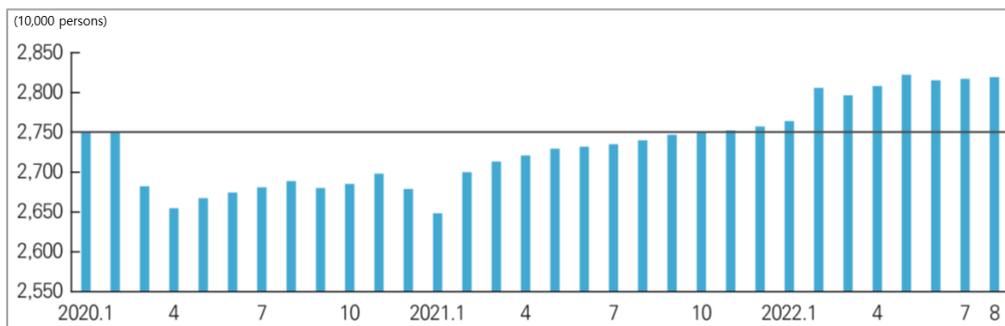


Source: OECD (2022), OECD Employment Outlook 2022

2. Domestic employment trends

In S. Korea, a high level of employment shock occurred as a result of the COVID-19 outbreak. After COVID-19 spread in S. Korea in February 2020, the employment market began to deteriorate rapidly, while the number of the employed (seasonally adjusted) in April 2020 fell to 94.5% of the pre-COVID-19 peak (January 2020). Subsequently, there was a slight recovery, but the employment level contracted again due to the third wave of COVID-19 outbreaks, decreasing to 96.3% of the previous peak in January 2021. However, there has been a rapid recovery since then, with the number of the employed in October 2021 having recovered to the previous peak level.

[Figure I-21] Changes in the No. of the Employed in S. Korea Post-COVID-19 (seasonally adjusted)



Source: Statistics Korea

It is also noteworthy that the rate of increase in the number of the employed is gradually accelerating after hitting a low in 2021. After January 2021, when employment entered a recovery phase and the number of employed (seasonally adjusted) increased by 0.8% quarter-on-quarter in the first half of 2021, the rate of increase in the number of employed gradually rose to 1.5% in the second half of 2021 and 2.0% in the first half of 2022.

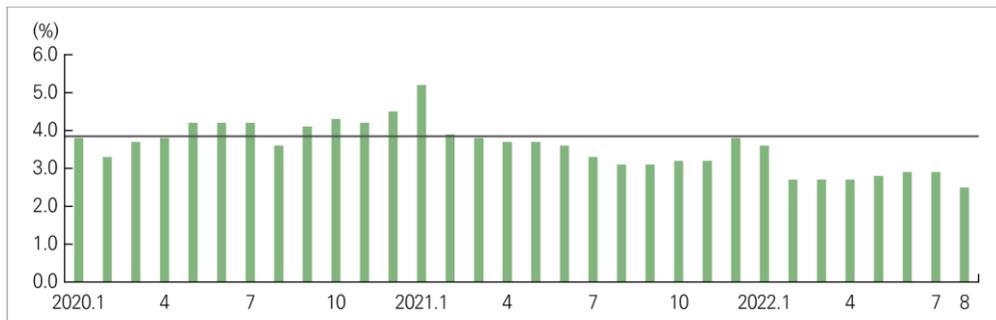
[Table I-5] Domestic Employment Growth Rate (seasonally adjusted, quarter-on-quarter)

	2 nd half of 2020	1 st half of 2021	2 nd half of 2021	1 st half of 2022
Domestic employment growth rate (%)	-0.4	0.8	1.5	2.0

Source: Statistics Korea

Changes in domestic unemployment rate (seasonally adjusted) also show that the employment situation has recovered from COVID-19. Since April 2021, the unemployment rate has remained lower than it was in January 2020 prior to COVID-19. The unemployment rate (seasonally adjusted) in the first half of 2022 was 2.9%, down by about 0.9%p from January 2020 (3.8%) before COVID-19. In addition, the average unemployment rate for July-August 2022 recorded 2.7%, denoting the possibility that the low level of unemployment will continue in the second half of the year.

[Figure I-22] Trends in Domestic Unemployment Rates Post-COVID-19 (seasonally adjusted)



Source: Statistics Korea



국회에산정책처



Part II

Gross National Income and Distribution Outlook

The National Assembly Budget Office

Part II. Gross National Income and Distribution Outlook

Chapter 1. Compensation of Employees



Section 1. Status

- **Employees' compensation in 2021** is KRW 992.7 trillion, which accounts for 47.9% of GDP.
 - Employees' compensation has increased at an average rate of 4.8% for the past five years
 - For the same period, the share to GDP rose from 45.2% to 47.9%

(Compared to the same period last year, %)

	Yr. 2017	2018	2019	2020	2021
Growth rate	4.9	5.3	5.2	2.4	6.1

Employees' compensation refers to wages and salaries distributed in exchange for labor among the added value generated in a country's production activities. As of 2021, employees' compensation was KRW 992.7 trillion, accounting for 47.9% of the total nominal GDP. The scale of employees' compensation is gradually expanding along with economic growth. Employees' compensation increased from KRW 824.4 trillion in 2017 to 992.7 trillion in 2021 at an annual rate of 4.8%. For the same period, the share of employees' compensation in GDP also showed an upward trend. The share of employees' compensation to GDP rose from 44.9% in 2017 to 47.9% in 2021.

[Figure II-1] Changes in Compensation of Employees and Share to Nominal GDP Employees to Nominal GDP



Source: The Bank of Korea

Yoo Geun-sik, economic analyst (gsyoo@assembly.go.kr, 6788-4753)

Section 2. Outlook for 2023¹⁾

- Employees' compensation in 2023 is forecast to increase by 4.8%, 3.5%p lower than the year before (forecast at 8.3%)

Yr. 2021	2022 ^f	2023 ^f	2017~2021	2022~2023 ^f
6.1	8.3	4.8	4.8	6.5

- Major change factors

Upside factor	Downside factor
<ul style="list-style-type: none"> • Increase in wage growth rate due to wage-inflation chain reaction 	<ul style="list-style-type: none"> • Slowing wage growth rate
	<ul style="list-style-type: none"> • Slowing growth rate of wage earners

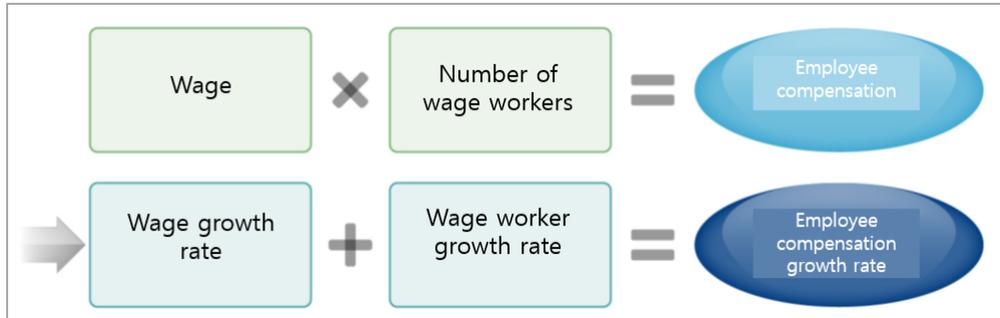
In 2022, employees' compensation is forecast to increase by 8.3% year-on-year. This significantly exceeds the growth rate of 6.1% in 2021 and the growth rate of 4.8% during the past five years (2017-2021). In 2022, the number of wage earners is forecast to increase significantly due to the employment boom, while wages are expected to record a favorable upward trend of 4.9%, so the share of the added value produced by the economy that goes to wage earners is forecast to increase significantly. In addition, the share of employees' compensation in total nominal GDP is forecast to rise from 47.9% in 2021 to 49.6% in 2022.

In 2023, employees' compensation is forecast to increase by 4.8% year-on-year. This is a figure that decreased by about 3.5%p compared to 2022, because the base effect of the slowing economic growth rate in 2023 and the employment boom in 2022 has caused the growth rate of the number of employed in 2023 to drop significantly year-on-year, and the wage growth rate is also expected to decline from 4.9% in 2022 to 3.9% in 2023 due to the decline in the consumer price inflation rate. However, if the inflation rate, which began to rise in the second half of 2021, is later reflected in wages, both the rate of increase in wages and rate of increase in employees' compensation could also rise.

1) It is expected that this can be used as basic data for policies on income distribution and to estimate total earned income tax revenues in identifying the direction of the share distributed to wage earners among the results of production activities.

The growth rate of employees' compensation is projected using the growth rate of wage earners derived from employment figure forecasts and the rate of increase in nominal wages.²⁾ Employees' compensation is expressed as the product of the total number of wage earners multiplied by the wages they receive. As a result, the rate of increase in employee remuneration could be expressed as the sum of the increase rate of wage earners and the rate of wage increase.³⁾ This relationship can be confirmed through the following figure.

[Figure II-2] Correlation between Compensation of Employees and Major Determinants



Source: Statistics Korea

The rate of increase in the number of wage earners and wages in 2022 and 2023 derived through the employment outlook is shown in the table below.

[Table II-1] Estimates of Major Determinants of Employees' Remuneration

	Yr. 2022	2023
Rate of increase in the No. of wage workers	3.4	0.8
Rate of increase in wages	4.9	3.9

Note: For more information on wage earners and wage forecasts, refer to Part III, Chapter 2. Employment Volume and Chapter 3. Wage Growth Rate

Source: The National Assembly Budget Office

2) More info. on the forecasts for the growth rate of the number of wage earners and nominal rate of wage increase are described later in Chapters 2 and 3 of Part III.

3) The method of converting the multiplication of wages and the number of wage earners into an additive relationship can be derived through the following formula.

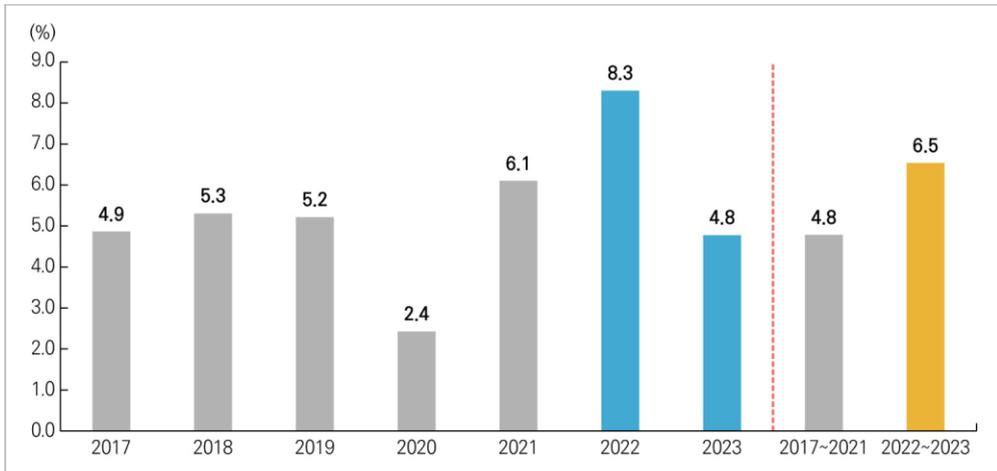
$$\text{Employees' compensation} = \text{Nominal wage} * \text{No. of wage earners}$$

$$* \ln(\text{employees' compensation}) = \ln(\text{nominal wage}) + \ln(\text{No. of wage earners});$$

$$* \Delta \ln(\text{employees' compensation}) = \Delta \ln(\text{nominal wage}) + \Delta \ln(\text{No. of wage earners});$$

$$* \text{Rate of increase in employees' compensation} = \text{Rate of increase in nominal wages} + \text{Rate of increase in wage earners}$$

[Figure II-3] Outlook for Rate of Increase in Compensation of Employees



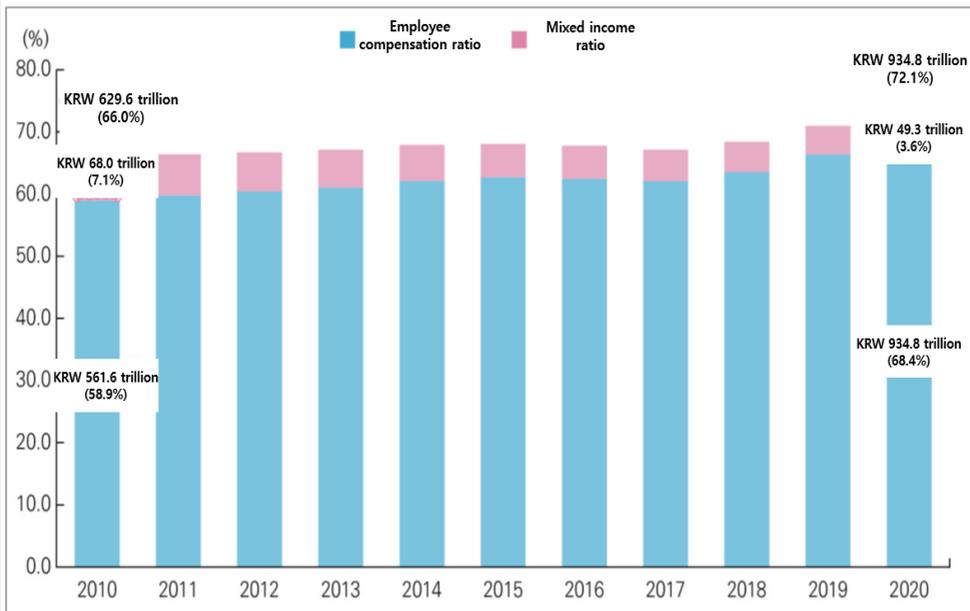
Source: The National Assembly Budget Office, the Bank of Korea

[BOX 1] Labor Income Distribution Rate and Distribution Rate for Compensation of Employees⁴⁾⁵⁾

- ❑ There is criticism that Korea's labor income distribution rate reflects only a part of labor income.
 - Labor income distribution rate represents the share of labor income in national income (Labor income + Capital income), and the conceptual definition is self-evident.
 - Labor income distribution rate = Labor income / (Labor income + Capital income)
 - However, in the process of estimating the domestic labor income distribution rate, a problem arises that labor income cannot be fully captured due to data limitations.
 - Labor income distribution rate estimation formula = Employees' compensation / (Employees' compensation + Operating surplus)
 - It is difficult to estimate the labor income of self-employed proprietors, so all income of self-employed proprietors is included as operating surplus. ⁶⁾
 - Therefore, employees' compensation, which is the numerator of the labor income distribution rate estimation formula, does not include all labor income.
 - In addition, opinions are divided on how far the scope of capital income should be considered.
 - In the U.S., UK, Canada, etc., the labor income distribution rate is calculated by including fixed capital consumption in capital income.
- ❑ The Bank of Korea plans to develop and announce a new labor income distribution rate.
 - From June 30, 2022, the Bank of Korea will replace the existing term of labor income distribution rate to the rate of employees' compensation.
 - They are seeking ways to improve the labor income distribution rate through expert-led consultation, etc., and the matters under discussion in this regard are as follows.
 - Reflection of labor income of self-employed proprietors, whether fixed capital consumption is included in capital income, etc.
- ❑ Domestic rate of employees' compensation[※] has continued to rise since 2010.
 - ※ It means the existing labor income distribution rate, and the formula is employees' compensation / (Employees' compensation + Operating surplus)
 - Employees' compensation increased steadily from KRW 561.6 trillion in 2010 to 934.8 trillion in 2020, resulting in an increase of KRW 373.2 trillion (66.5%)

- The employees' compensation ratio recorded 58.9% in 2010, but has steadily increased since then, rising to 68.4% in 2020.
- Even if the mixed income of self-employed proprietors is taken into account as labor income, the share distributed to labor has increased for the past 10 years.
 - The share of the sum of employees' compensation and mixed income in national income increased by about 6.1%p from 66.0% in 2010 to 72.1% in 2020.
 - However, the share of mixed income decreased from 7.1% in 2010 to 3.6% in 2020.

[Trends in Employee Compensation Ratio and Mixed Income Ratio]



Source: The Bank of Korea

- 4) It was prepared based on the Bank of Korea (2022) and the National Assembly Budget Office (2022).
- 5) Labor income distribution rate = labor income / (Labor income + Capital income);
Calculation of labor income distribution rate (Current employees' compensation ratio) in S. Korea = Employees' compensation / (Employees' compensation + Operating surplus)
- 6) Mixed income, the income of self-employed proprietors, is provided as a supplementary indicator, but mixed income includes both labor income and capital income of self-employed proprietors.

Chapter 2. Consumption of Fixed Capital



Section 1. Status

- Fixed Capital Consumption in 2021 is increase by 8.2%

(Compared to same period last year, %)

	Yr. 2017	2018	2019	2020	2021
Rate of increase	5.2	5.7	6.3	4.7	8.2

Fixed capital consumption increased by 6.2% per year on average between 2017 and 2021, increasing the ratio to nominal GDP from 18.5% in 2017 to 20.9% in 2021. Fixed capital consumption is determined by capital stock as the decrease in its monetary value due to wear and tear deterioration attributed to the use of fixed assets for a certain period of production. That is, capital stock changes and is affected by fixed asset investment (total fixed capital formation).

During the first half of 2022, nominal gross fixed capital formation increased by 3.4% year-on-year. Construction investment increased by 4.5%, and facility investment decreased by -1.6%. In contrast, investment in intellectual property products, which are invested in R&D assets with a short useful life, increased significantly to 8.2%, which is forecast to affect the increase in fixed capital consumption in the future.

[Table II-2] Nominal Gross Fixed Capital Formation

(Rate of change over the same period last year, %)

	Yr. 2022		
	1/4	2/4	1H
Total fixed capital formation	3.1	3.8	3.4
- Construction investment	4.3	4.7	4.5
- Facility investment	-2.8	-0.4	-1.6
- Investment in intellectual property products	8.8	7.6	8.2

Source: The Bank of Korea

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Section 2. Outlook for 2023⁷⁾

- In 2023, fixed capital consumption is forecast to increase by 3.9%, 0.5%p higher than the year before (forecast at 3.4%).

(Compared to the same period last year, %)

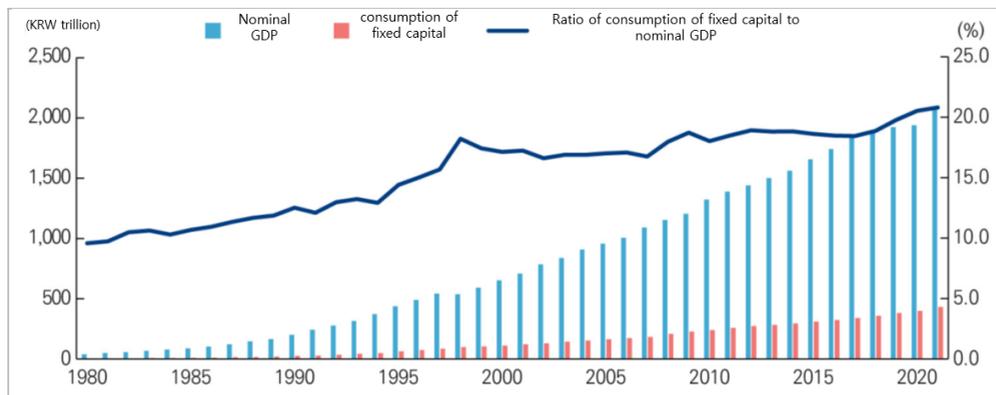
Yr. 2021	2022 [†]	2023 [†]	2017~2021	2022~2023 [†]
8.2	3.4	3.9	6.2	3.6

- Major change factors

Upside factor	Downside factor
<ul style="list-style-type: none"> • Increase in total fixed capital investment • Increase in investment in intellectual property products and assets 	<ul style="list-style-type: none"> • Decreased investment due to economic uncertainty • Slowing growth in nominal gross domestic product (GDP)

Between 1980 and 2021, nominal GDP and fixed capital consumption increased steadily. As fixed capital consumption showed a higher increase, the ratio of fixed capital consumption to nominal GDP increased by 11.3%p from 9.6% in the 1980s to 20.9% in 2021. This is due to the advancement of industry and the increase in the share of capital used in production. Given this correlation, fixed capital consumption was projected using the empirical correlation between nominal GDP and total fixed capital investment.

[Figure II-4] Changes in Nominal GDP and Fixed Capital Consumption (1980-2021)



Source: The Bank of Korea

7) It is likely to be used as basic data for vitalizing investment in production assets and promoting investment in old SOC. In addition, it can be used as basic data for discussions on corporate investment tax credit and R&D tax exemption.

Considering that fixed capital consumption is determined by the size of capital stock resulting from fixed asset investment (total fixed capital formation) and the degree to which it is used for production, while nominal GDP is a proxy variable for production and gross fixed capital investment is a variable that affects the size of the capital stock, the above items are determined to be factors that determine mid-term fixed capital consumption.

[Figure II-5] below shows the correlation between nominal GDP and total fixed capital formation, which determine fixed capital consumption, with fixed capital consumption being affected by nominal GDP and total fixed capital formation. An increase in total fixed capital formation increases fixed capital consumption, and nominal GDP was also found to have an effect on the increase in fixed capital consumption due to an increase in production.

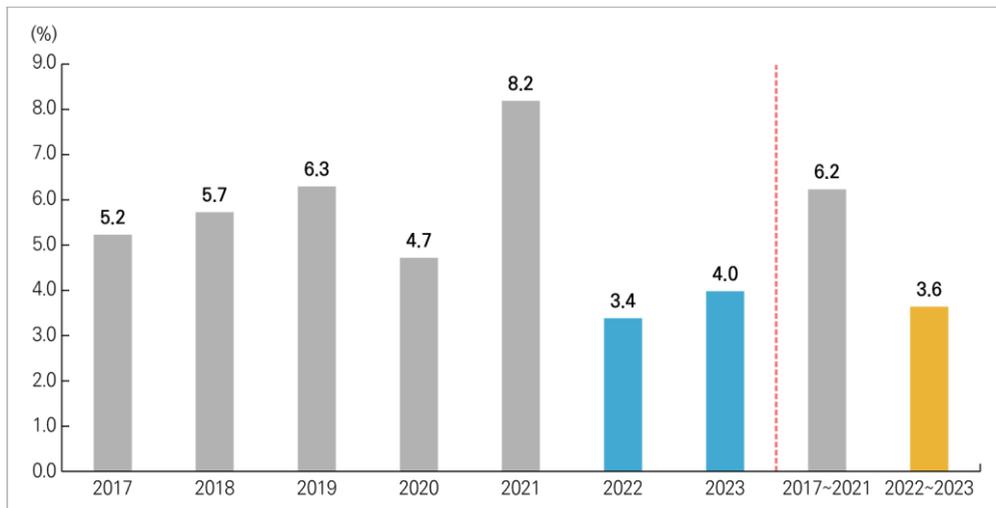
[Figure II-5] Correlation between Fixed Capital Consumption and Major Determinants



Source: The National Assembly Budget Office

Fixed capital consumption is forecast to increase by 3.4% in 2022 and 4.0% in 2023, which is slightly lower than the average growth rate of 6.2% during the past five years.

[Figure II-6] Outlook for Growth Rate of Fixed Capital Consumption



Source: The National Assembly Budget Office, the Bank of Korea

[BOX 2] Fixed Capital Consumption

- ❑ What is fixed capital consumption?
 - It refers to the decrease in value due to physical deterioration, ordinary obsolescence, ordinary accidents, losses, etc. attributed to the use of fixed assets for a certain period of time in production.
 - That is, the value of tangible fixed assets decreases due to wear and tear or obsolescence over their life span of use in the production process or due to the passage of time and technological development, and thus refers to the decrease in their monetary value.
- ❑ How is fixed capital consumption estimated?
 - Since the decrease in value occurs differently for each type of asset, the scale of the asset (stock) is estimated for each asset type and fixed capital consumption is estimated through the difference in asset stock by year.
 - For example, a patent for a new electronic device will greatly decrease in value after 10 years as the new device enters the market, but a building may lose a small decrease in value over the same period.
 - ※ Assets for which fixed capital consumption is calculated in the national account's asset classification standards are fixed assets among production assets, including construction assets, facility assets, and intellectual property product assets.
- ❑ Why is fixed capital consumption necessary?
 - In order to evaluate the net value of products produced during a certain period of time, it is necessary to evaluate the value of production in a state where the current production capacity is maintained without deterioration.
 - For example, parts are used in the production of automobiles, but assembly machines run out their useful lives. So gross production value refers to the total added value after subtracting intermediate inputs (parts, etc.) from the output value, and net production is the net added value obtained by subtracting fixed capital consumption from the total added value.
 - It is used to link the national income statistics (flow) and the national balance sheet (stock), while estimating the net basis national income (GNI), which is more closely related to the level of welfare.

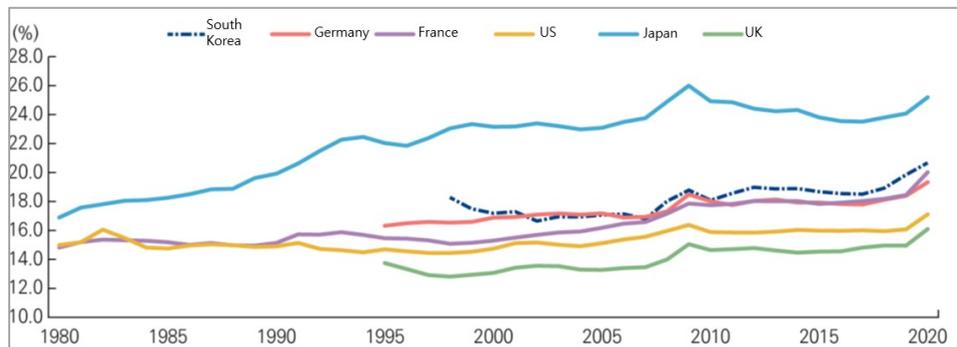
Source: The Bank of Korea (2020), 「S. Korea's National Accounts System」 p.59, The Bank of Korea (2020), 「Commentary on S. Korea's National Balance Sheet」 p.10

[BOX 3] International Comparison of the Ratio of Fixed Capital Consumption to GDP

- The ratio of fixed capital consumption to GDP in major countries continues to increase.
 - Fixed capital consumption has shown an increasing trend as the industry advances and the percentage of capital input to production increases.
 - Although there are differences in the level of each country, the long-term trend of increasing the ratio of fixed capital consumption to GDP is the same.

 - As of 2020, Japan (25.2%) boasts the highest ratio of fixed capital consumption to GDP.
 - Korea (20.7%) boasts the second highest rate among the five countries, higher than the U.S. and similar to Germany and France.
 - 2020 Ratio (%): France (20.0), Germany (19.3), U.S. (17.1), UK (16.9)
 - It is expected that the increase in fixed capital consumption will continue in the future as the share of intellectual property products[※] in Korea's assets is increasing.
 - In the case of intellectual property product assets, when they become obsolete due to the emergence of new knowledge, their role as assets ceases and fixed capital consumption increases.
 - Proportion of knowledge product assets among fixed assets: 4.8% ('97) → 6.0% ('04) → 7.0% ('13) → 8.2% ('19) → 8.4% ('21)
- ※ Results of research and development (R&D), software and database, original works of art, etc.

[Trends in Ratio of Fixed Capital Consumption to GDP in Major Countries]



Source: OECD

Chapter 3. Net Production and Import Tax



Section 1. Status

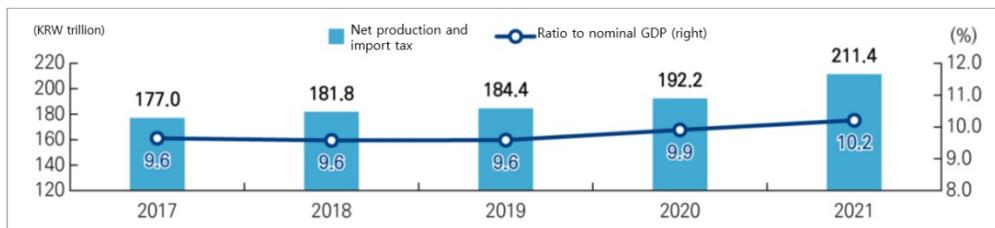
- Net production and import tax in 2021 amounted to KRW 211.4 trillion, accounting for 10.2% of GDP.
 - Net production and import taxes have increased at an average rate of 4.8% for the past five years.
 - For the same period, its ratio to GDP rose from 9.6% to 10.2%.

(Compared to previous year, %)

	2017	2018	2019	2020	2021
Rate of increase	5.7	2.7	1.5	4.2	10.0

Net production and import taxes are production and import taxes subtracted by subsidies, and represent the primary distribution to the government of income from production activities. Net production and import taxes in 2021 amounted to KRW 211.4 trillion, accounting for about 10.2% of total GDP. As the size of the economy grows, net production and import taxes also increase. Net production and import taxes increased by 4.8% annually from KRW 177.0 trillion in 2017 to 211.4 trillion in 2021. The ratio to GDP also rose from 9.6% in 2017 to 10.2% in 2021 at an average annual rate of 0.1%p. Given that the ratio of net production and import tax to GDP averaged 10.3% in the 2000s, the recent rise indicates that the ratio has returned to the past level.

[Figure II-7] Changes in Net Production and Import Taxes and Their Ratio to Nominal GDP



Source: The Bank of Korea

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Section 3. Prospects for 2023⁸⁾

- In 2023, net production and import taxes are projected to increase by 5.8%, 1.2%p higher than the year before (forecast at 4.6%).

(Compared to the same period last year, %)

Yr. 2021	2022 [†]	2023 [†]	2017~2021	2022~2023 [†]
10.0	4.6	5.8	4.8	5.2

- Major change factors

Upside factor	Downside factor
<ul style="list-style-type: none"> • Slowing growth in import tax refunds 	<ul style="list-style-type: none"> • Declining economic growth rate
	<ul style="list-style-type: none"> • Slowing import tax growth due to slowing imports

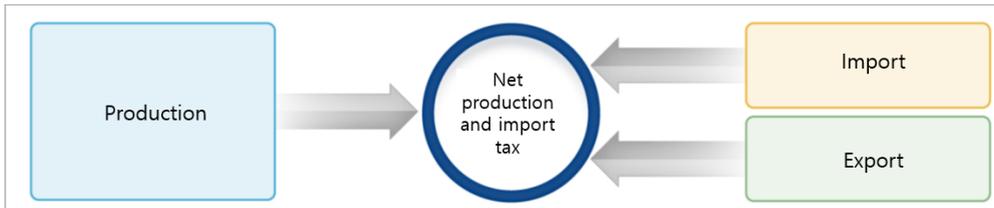
During 2022, net production and import taxes are projected to increase by 4.6%. Although this is far below the 2021 increase rate of 10.0%, it is similar to the 4.8% increase rate for the past five years (2017-2021).

In 2023, net production and import taxes are expected to increase by 5.8% year-on-year, and the ratio to nominal GDP is projected to rise slightly from 10.2% in 2022 to 10.3% in 2023. The nominal economic growth rate, which is expressed by converting production growth into the current currency unit, was 4.6% in 2023, a slight decrease from 4.7% 2022, which acted as a downside factor for net production and import tax. In contrast, in the course of simultaneous slowdowns in imports and exports in 2023, it is evaluated that the impact of the slowdown in exports had a greater effect, leading to an increase in the rate of increase in net production and import taxes.⁹⁾

Net production and import tax were projected by selecting the nominal GDP growth rate, import amount, and export amount as the main determinants. Since production tax is levied per unit based on production and sales, etc., it is affected by gross domestic product, and import tax is affected by the amount of imports. In addition, since the customs duties already paid on imported raw materials used for export are returned to the exporter or producer in accordance with the Act on Special Cases on the Refund of Customs Duties, this peculiarity was reflected through the amount of export. The correlation between net production and import tax and the main determinants can be seen in the figure below.

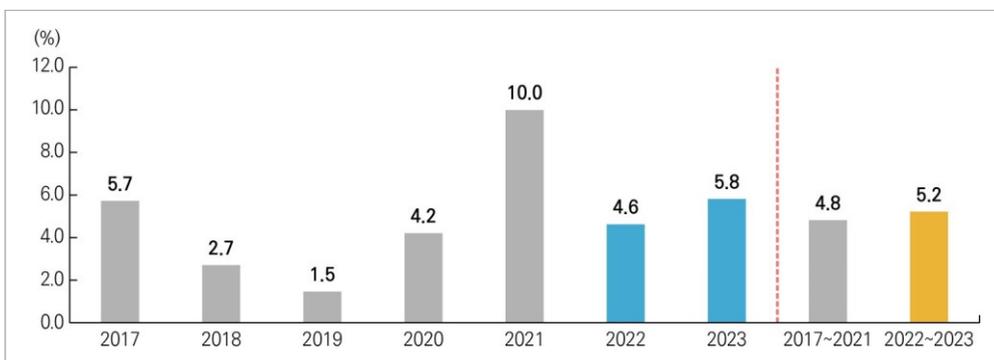
- 8) As indicators of the government's primary income for production activities, net production and import tax can be used as basic data for estimating indirect taxes among the government's total revenue in the future. In 2021, net production and import taxes account for 37.0% of government revenue and 61.4% of national tax revenue, and provide data to confirm ex post facto the share of indirect tax, current tax, and capital tax in the total tax revenue.
- 9) In 2023, the growth rate of exports and imports is forecast to slow significantly. For more information on the import and export projections, refer to the 「Outlook for 2023 and the Medium-term I: Expenditure Sector.

[Figure II-8] Correlation between Net Production and Import Tax and the Main Determinants



Source: The National Assembly Budget Office

[Figure II-9] Forecast of the Growth Rate of Net Production and Import Tax



Source: The National Assembly Budget Office, the Bank of Korea

Chapter 4. Operating Surplus



Section 1. Status

- Operating surplus in 2021 increased by 5.3% year-on-year.
 - Operating surplus rebounded to an upward trend in 3 years, but its ratio to GDP was 21.0% and continued to decline for the past 5 years.

(Versus the same period last year, %)

	Yr. 2017	2018	2019	2020	2021
Rate of increase	6.5	-1.1	-9.0	-7.1	5.3

Operating surplus refers to the profit that an economic operator receives in return for providing capital and land for production activities. As of 2021, operating surplus was KRW 435 trillion, accounting for 21.0% of total nominal GDP. As confirmed in Part I, the share of operating surplus has been on a downward trend since 1980, while the annual GDP growth rate averaged 3.1% for the past five years, but the annual GDP growth rate averaged 3.1% during the past five years, but operating surplus was -3.2%. For the same period, the share of operating surplus to GDP fell 5.9%p from 26.9% in 2017 to 21.0% in 2021.

[Figure II-10] Operating Surplus and Its Ratio to Nominal GDP

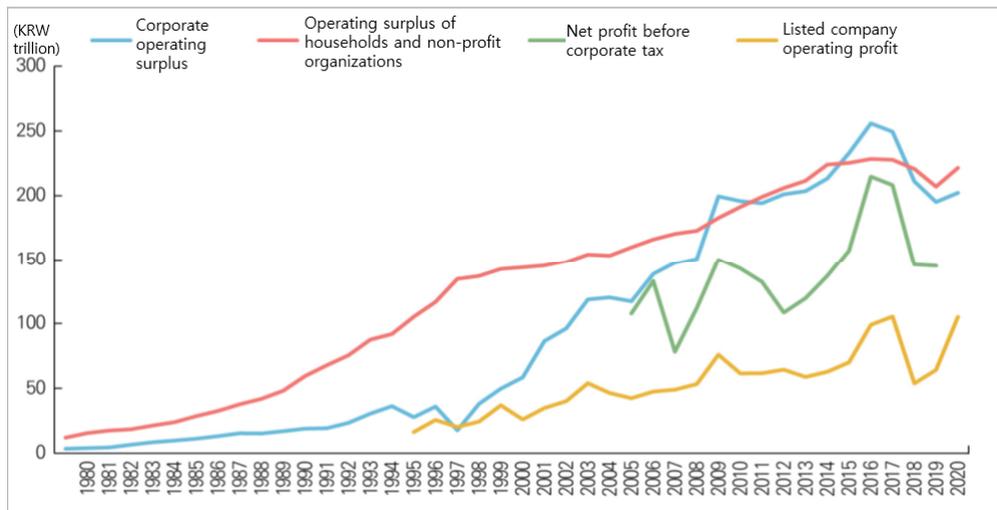


Source: The Bank of Korea

Operating surplus can arise from households, firms, and governments. However, since non-market outputs produced by non-market producers, the government or non-profit organizations serving households are evaluated not at market prices but at production costs, the operating surplus is zero (0). As for quasi-enterprises or households and non-profit organizations that are not profit-driven companies but engage in commercial activities and perform the same production unit role as companies, a large number of non-wage earners are included, thus operating surplus from production activities includes labor income. Since they can simultaneously play the role of entrepreneurs who manage companies besides the role of providing labor and capital for production, operating surplus conveys the meaning of mixed income.

Operating surplus can be divided into corporate operating surplus and household and non-profit organization operating surplus. As of 2021, corporate operating surplus was KRW 202 trillion and unincorporated operating surplus was KRW 221 trillion, each accounting for about half of the share.¹¹⁾ Among them, in order to grasp the changes in corporate operating surplus in more detail, the current net profit of publicly listed companies provided by the Stock Exchange was compared with corporate net profit before corporate tax provided in 「Business Management Analysis」 published by the National Statistical Office. Corporate net profit in 2020 Business Management Analysis is KRW 145 trillion, which is different from corporate operating surplus of KRW 195 trillion, but the change in trend is at a similar level, and the current net profit of publicly listed companies has a similar trend.

[Figure II-11] Comparison of Operating Profit and Operating Surplus of Corporations, Non-corporations and Publicly Listed Companies

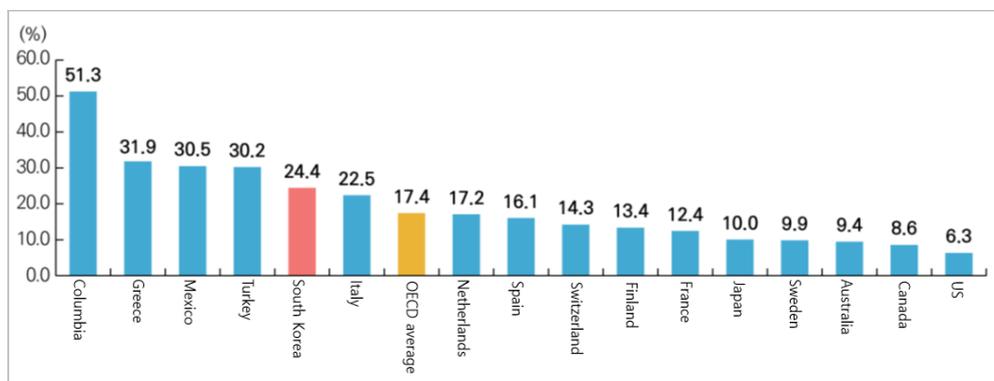


Source: The Bank of Korea, Statistics Korea

11) The corporation operating surplus is the secondary distribution by economic operator to confirm the composition of operating surplus, and uses the value after subtracting net overseas corporate and property income.

It is difficult to confirm the operating surplus of quasi-corporations or households and unincorporated companies, which fall under unincorporated operating surplus, through individual statistics. This is because despite boasting many companies, the size of their operating profits is not large, so there are no extensive surveys or separate statistics. For example, the 「National Business Survey」 of the National Statistical Office surveys all businesses nationwide every year. As of 2019, there are 4.17 million businesses, of which 3.28 million are individual businesses. However, this survey does not examine sales and operating profit. The 「Small Business Survey」, which targets 2.9 million small businesses, can identify business performance and profitability indicators, but it is an average rate of return data, rather than standard values. Due to the limitations of such data, it is difficult to confirm unincorporated operating surplus through statistics other than the national accounts. However, in S. Korea, the percentage of self-employed proprietors (non-wage workers) is 24.4% as of 2020, which is higher than the OECD average of 17.4%. Thus, assuming that it converges to the OECD average in the future, the percentage of operating surplus is forecast to decrease in the future.¹²⁾

[Figure II-12] Percentage of Self-Employed Proprietors by OECD Country



Note: This refers to the percentage of self-employed proprietors among the employed as of 2020. Figures for S. Korea in 2020 were not provided by the OECD, so data from the Economically Active Population Survey of the National Statistical Office were used.

Source: OECD Employment Outlook

12) It is explained in the prospect of non-wage workers in Part III of this report, ‘Percentage of the employed by occupational status.’

Section 2. Outlook for 2023¹³⁾

- Operating surplus in 2023 is expected to increase by 4.3%, 6.5%p higher than the year before (forecast at -2.2%).

(Compare to the same period last year, %)

Yr. 2021	2022 [†]	2023 [†]	2017~2021	2022~2023 [†]
5.3	-2.2	4.3	-3.2	1.0

- Major change factors

Upside factor	Downside factor
<ul style="list-style-type: none"> • Cost reduction due to falling international raw & intermediate prices 	<ul style="list-style-type: none"> • Expenses increase due to rising prices of international oil, raw materials & intermediate goods
<ul style="list-style-type: none"> • Expansion of production activities due to increased exports 	<ul style="list-style-type: none"> • Contraction of production activities due to global economic uncertainty
	<ul style="list-style-type: none"> • Wages rise & business profitability declines

Operating surplus in 2022 is projected to decrease by 2.2% year-on-year, and in 2023, it is forecast to rise by 4.3%. This is an increase rate lower than the 5.3% in 2021 but exceeds the -3.2% increase rate for the past five years (2017-2021).

The projected operating surplus is obtained as the residual after subtracting previously forecasted employees' compensation, fixed capital consumption, net production, and import tax among the components of distributed GDP.¹⁴⁾ The national accounts also use operating surplus as a balancing item for income-generating accounts, and the UN's Manual of National Accounts also estimates operating surplus as a balancing item¹⁵⁾. Thus, operating surplus fluctuates in line with changes in employees' compensation and fixed capital consumption. Given the recent boom in the job market and the structure of national income distributed in major countries, there is a downside factor to operating surplus in that the percentage of employees' compensation can increase not only in the short term but also in the mid to long term. Other downside factors to operating surplus include increased costs due to rising prices of international oil, raw materials, and intermediate goods, and contraction in production activities due to global economic uncertainty.

13) It is seen to be useful as basic data to determine the income of entities engaged in production activities, such as companies, small business owners, and self-employed proprietors.

14) Distributed GDP refers to nominal GDP, and for more info., refer to the 「Economic Outlook for 2023 and the Mid-Term I: Expenditure」.

15) However, operating surplus and fixed capital consumption are collectively identified by country.

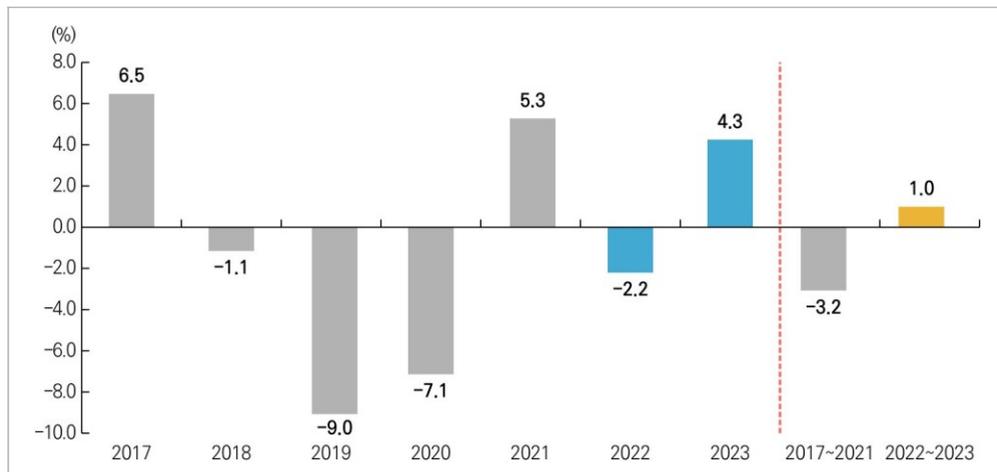
Determinants were reviewed for reference for forecasting operating surplus. Operating surplus can be divided into corporate operating surplus and unincorporated operating surplus. Given that the manufacturing industry accounts for a large percentage of corporate operating surplus, the result of looking at manufacturing added value and the number of wage earners revealed that manufacturing production increases corporate operating surplus, while the number of wage earners has an effect on reducing corporate operating surplus. In contrast, unincorporate operating surplus was reviewed using added value in the service industry and the number of non-wage workers, but there was no statistical significance with non-wage workers.

[Figure II-13] Determinants of Corporate Operating Surplus



Operating surplus as a balancing item of national income distributed is forecast to decrease by 2.2% in 2022 and increase by 4.3% in 2023. Accordingly, the share of operating surplus to GDP is forecast to drop by 1.4%p from 21.0% in 2021 to 19.6% in 2022 and 2023.

[Figure II-14] Forecast of Operating Surplus Growth Rate



Source: The National Assembly Budget Office, the Bank of Korea

[BOX 4] Operating Surplus and Operating Profit

- Operating surplus includes corporate and unincorporated operating profits and some labor income.
 - Operating surplus is the income of corporations, households, and non-profit organizations, including income of privately owned businesses, corporations other than companies, and unincorporated organizations.
 - According to the 「National Business Survey」 by the National Statistical Office, there were 4.17 million businesses in S. Korea in 2019, of which company corporations accounted for 15.0%.
 - 78.5% for privately owned businesses, 3.3% for corporations other than companies and unincorporated organizations
 - Unincorporated companies also include non-wage workers whose labor remuneration is by definition included in operating surplus.
 - Countries with a high percentage of non-wage workers have higher operating surplus ratios than countries without non-wage workers. For example, Italy has a large number of non-wage workers, while France has a small number of non-wage workers, but if the estimated remuneration of non-wage workers is subtracted from Italy's operating surplus, operating surplus ratios in Italy and France are similar.¹⁶⁾

[National Business Survey results]

(Unit: thousand, %)

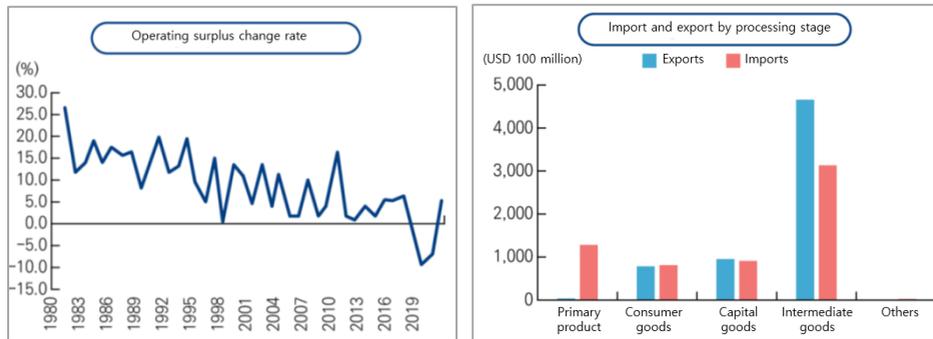
	Total	Private business	Company corporation	Corporations other than companies*	Unincorporated organization
2018 (ratio)	4,103	3,245 (79.1)	594 (14.5)	130 (3.2)	133 (3.2)
2019 (ratio)	4,175	3,276 (78.5)	624 (15.0)	137 (3.3)	138 (3.3)

Source: Statistics Korea

- Operating surplus fluctuates widely on an annual basis.
 - Operating surplus is the income distributed to entities that are engaged in production activities, and is calculated by subtracting expenses from total sales, so this figure fluctuates largely on an annual basis.
 - After 2000, the annual rate of change decreased to around 5%, but before 2000, it fluctuated around 10% per year.

- o The volatility of operating surplus is attributed to the Korean economy is heavily weighted in the trade of intermediate goods, so companies' operating profits vary greatly depending on the terms of trade.

[Volatility of Operating Surplus]



Source: The Bank of Korea, KITA

- o The operating profit of publicly listed companies has a high fluctuation rate and is highly dependent on the business conditions and business performance of large companies.
 - Based on a survey of about 600 listed companies as to their profit figures for the past five years, their sales fluctuated by around 10% from KRW 1,143 trillion to 1,204 trillion, while their operating profit fluctuation rate reached 100% from KRW 54 trillion to 105 trillion.
- o Sales and operating profit of small privately owned businesses are KRW 200 million and 19 million per company as of 2020 (Statistics Office, Small Business Survey, 2021).

[Revenue of Listed companies]

(Unit: EA, KRW trillion, %)

	Yr. 2017	2018	2019	2020	2021
No. of companies	629	641	671	677	686
Sales	1,148	1,204	1,177	1,143	1,342
Operating profit	99	105	54	64	105
Current net income	85	72	34	42	92
Profit margin on sales	7.44	5.97	2.86	3.65	6.86

Source: Statistics Korea

Chapter 5. Gross National Income (GNI)



Section 1. Status

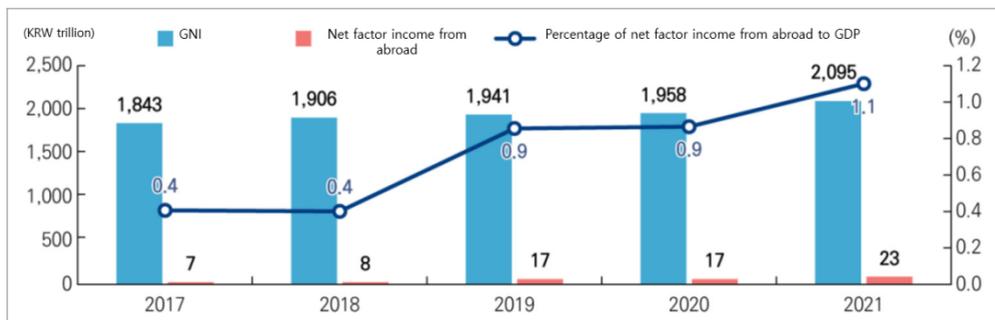
- **Gross National Income (GNI) in 2021** increased by 7.0% year-on-year.
 - Nominal GDP increased by 6.7% year-on-year.
 - GNI growth rate exceeded GDP growth rate as net factor income from abroad (nominal) increased by 36.1% year-on-year, expanding its share to GDP to 1.1%.

(Versus the same period last year, %)

	Yr. 2017	2018	2019	2020	2021
Growth rate	5.5	3.4	1.9	0.9	7.0

In 2021, nominal gross national income increased by 7.0% year-on-year to KRW 2,095 trillion, which is a 0.3%p increase from the 6.7% growth rate of nominal GDP (KRW 2,072 trillion) as a result of net factor income from abroad, which refers to income earned abroad, increasing by KRW 23 trillion. The share of net factor income from abroad reached an all-time high of 1.1% in 2021, up 36.1% year-on-year.

[Figure II-15] GNI and Share of Net Factor Income from Abroad



Source: The Bank of Korea

Heo Ga-hyung, Director of the Population & Strategy Analysis Division (hugh@assembly.go.kr, 6788-4749)

However, it was found that the nominal gross national income (GNI) growth rate in the first half of 2022 did not reach the GDP growth rate. Gross national income increased by 4.9% compared to the first half of 2021, while the gross domestic product (GDP) growth rate during the same period was 5.3%, 0.4% higher.

The recent decline in the growth rate of gross national income is attributable to the negative growth of net factor income from abroad. Net factor income is the income earned by providing labor and capital for production activities abroad, and accounts for the difference between gross domestic product and gross national income. In the first half of 2022, net factor income from abroad was KRW 11.9 trillion, which is higher than the KRW 7.9 trillion in the second half of 2021 but 21.2% smaller than the KRW 15.1 trillion in the first half of 2021¹⁵⁾. Net factor income from abroad is calculated as the difference between factor income from abroad received from supplying labor and capital for overseas production activities and factor income from abroad paid for using foreign labor and capital for domestic production activities. In the case of S. Korea, net factor income from abroad rose at an annual average of 25.0% from 2010 to 2021, and showed a high growth rate of 32.5% during the last five years. Even in 2020, when the domestic economic situation was below expectations due to COVID-19, it grew by 2.0% year-on-year, while in 2021, it recorded a high growth rate of 36.1% due to the base effect and an increase in capital market investment returns in major countries.

[Table II-3] Status of Gross National Income in the 1st Half of 2022

(Unit: KRW tril, %)

	Yr. 2017	2018	2019	2020	2021		2022
					1H	2H	1H
Gross national income	1,843	1,906	1,941	1,958	1,035	1,060	1,086
(Growth rate)	(5.5)	(3.4)	(1.9)	(0.9)	(7.3)	(6.7)	(4.9)
Net factor income from abroad	6.4	7.5	7.6	16.6	15.1	7.9	11.9
(Growth rate)	(17.6)	(2.2)	(117.3)	(2.0)	(88.8)	(-12.2)	(-21.2)

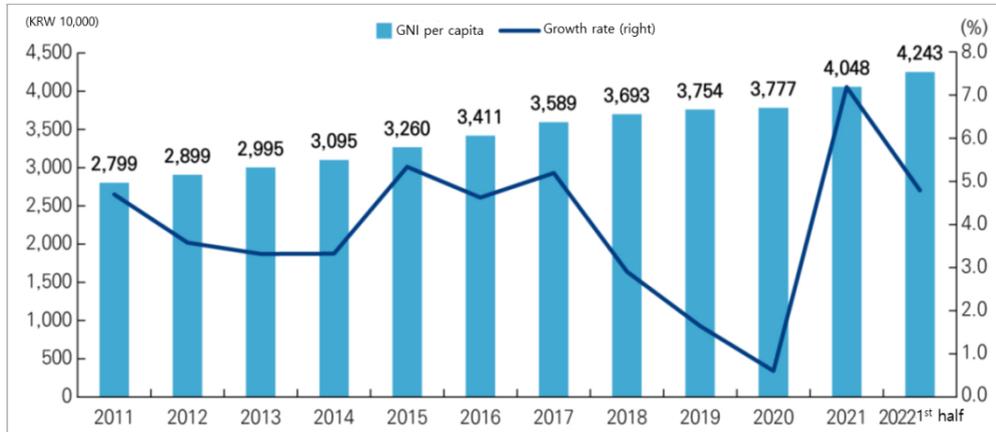
Note: () means year-on-year increase

Source: The Bank of Korea

15) For net factor income from abroad, quarterly trends cannot be confirmed in detail, but changes in component items can be estimated through the primary income account on the international balance of payments. Net factor income from abroad is expressed in KRW and primary income account is expressed in USD, so despite a difference due to exchange rate swings, it refers to the same net income earned from abroad. This is because the primary income account is provided separately between salary and wage account and investment income account. The investment income account of the primary income account consists of revenue and payment of direct investment, securities investment, and other investment incomes. In the first half of 2022, revenue from investment income, which accounts for the largest share, decreased by 23.7% versus the same period last year, becoming a major factor in the decrease in investment income. Revenue from securities investment, the second share, maintained a certain level, while revenue from other investment income, which had the smallest portion, accounted for 16.7%, down 5.7% versus the same period last year.

Gross national income per capita, which is calculated by dividing gross national income by total population, was KRW 42.43 million in the first half of 2022, an increase of 4.8% year-on-year.¹⁶⁾ In 2021, this figure was KRW 40.48 million, an increase of 7.2% year-on-year as a result of the base effect of the stagnant increase in GDP per capita in 2020 due to the impact of COVID-19.

[Figure II-16] Nominal Gross National Income per Capita



Note: Nominal gross national income per capita = Nominal gross national income ÷ Total population

Source: The Bank of Korea

16) For the total population, NABO population estimates are applied.

Section 2. Outlook for 2023

- In 2023, Gross National Income (GNI) is expected to increase by 4.7%, up 0.3%p from the year before (4.4%).

(Compared to the same period last year, %)

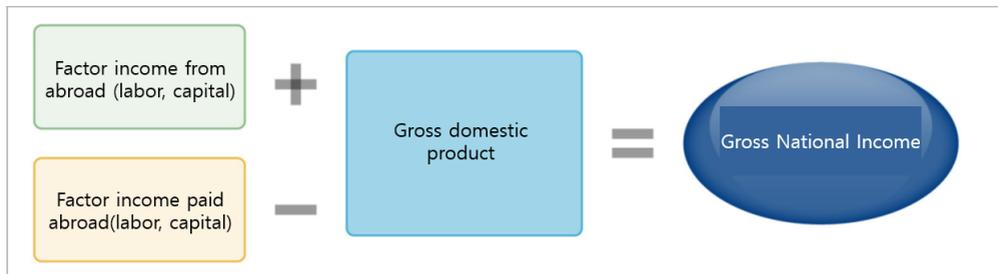
Yr. 2021	2022 [†]	2023 [†]	2017~2021	2022~2023 [†]
7.0	4.4	4.7	3.2	4.6

- Major change factors

Upside factor	Downside factor
<ul style="list-style-type: none"> Normalization of economic activities in major countries following stabilization of international oil & raw material prices 	<ul style="list-style-type: none"> Increase in import prices & economic slowdown due to rising international oil & raw material prices
<ul style="list-style-type: none"> Increased return on foreign capital investment 	<ul style="list-style-type: none"> Reduction in foreign capital investment revenue due to global economic uncertainty
<ul style="list-style-type: none"> Increase in foreign exchange gains due to the rise in exchange rates 	<ul style="list-style-type: none"> Influx of migrant workers due to high domestic employment rate
	<ul style="list-style-type: none"> Expansion of domestic dividend investment by foreign investors

In 2022, the gross national income is forecast to increase by 4.4% year-on-year, which is above the 7.0% in 2021 and the 3.2% growth rate for the past five years (2017-2021). Since gross national income is calculated by adding net factor income from abroad to gross domestic product, it may change depending on changes in net factor income from abroad. Thus, for the purpose of forecasting gross national income, the net factor income from abroad was projected by dividing it into receipts and payments.

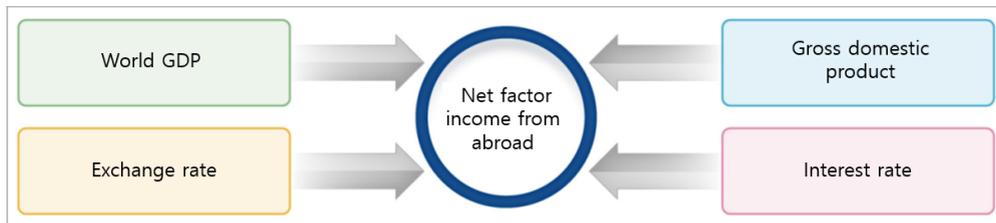
[Figure II-17] Gross National Income and Net Factor Income from Abroad



Source: The National Assembly Budget Office

The determination of net factor income from abroad depends on the level of domestic labor and capital outflows to the world market and the level of foreign labor and capital participation in the domestic market. If the global economic situation is favorable due to stabilization of international oil and raw material prices, income from abroad may increase as foreign capital investment returns increase. In addition, when overseas investment by domestic companies, pension funds, and individuals expands or foreign exchange gains increase due to a rise in the exchange rate, net factor income from abroad in KRW increases. It can emerge as a downside factor when the return on foreign capital investment decreases amid growing global economic uncertainty, and this also applies when the earned income payment increases due to attracting overseas workers, but being a small percentage of the total, it is not expected to have a significant impact. Therefore, the determinants of net factor income from abroad were deemed to be exchange rates and interest rates that can affect global and Korean GDP and international capital movements.

[Figure II-18] Determinants of Net Factor Income from Abroad



Source: The National Assembly Budget Office

Net factor income from abroad is forecast to show negative growth of 24.9% in 2022 due to the negative base effect of the high growth rate in the previous year and the decrease in investment income. Thus, the share of foreign net factor income to GDP is forecast to decrease slightly from 1.1% in 2021 to 0.8% in 2022.

[Table II-4] Forecast of Net Factor Income from Abroad

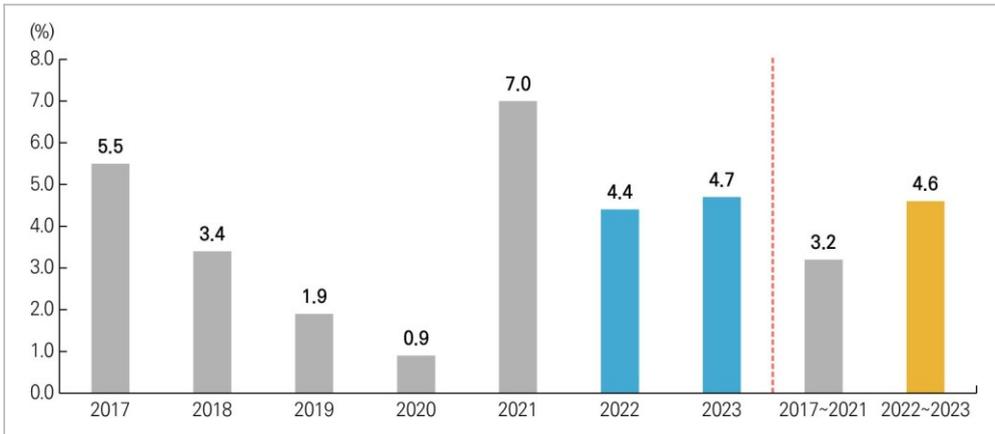
(unit: %)

	Yr. 2021	2022 ^f	2023 ^f	2017~2021	2022~2023 ^f
Net factor income from abroad	49.3	-24.9	21.5	32.5	-4.5
(Ratio to GDP)	1.1	0.8	0.9	0.7	1.0

Source: The National Assembly Budget Office

In 2022 and 2023, gross national income is projected to increase by 4.6%, higher than the average growth rate for the last five years of 3.2%.

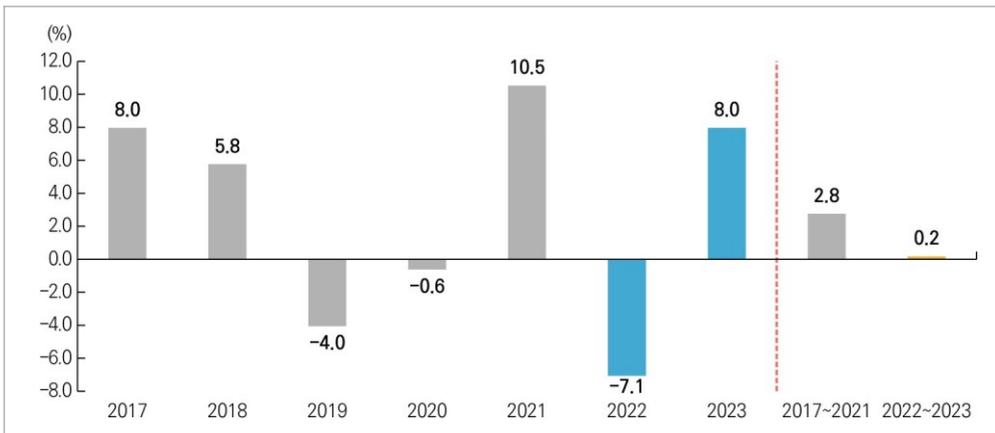
[Figure II-19] Forecast of GNI growth rate



Source: The National Assembly Budget Office, the Bank of Korea

For international comparison of income per capita, the rate of increase in GNI per capita in dollar terms was projected. In 2022, GNI per capita is forecast to decline by 7.1% due to a steep rise in the exchange rate, and in 2023, it is forecast to rise by 8.0% reflecting the base effect.

[Figure II-20] Forecast of GNI Growth Rate per Capita



Source: The National Assembly Budget Office, the Bank of Korea

국회에산정책처



Part III

Outlook for the Mid-Term Population and Employment

The National Assembly Budget Office

Part III. Outlook for the Mid-Term Population and Employment

Chapter 1. Population



Section 1. Mid-Term Outlook¹⁾

- From 2022 to 2026, the population is on track to decrease. by -0.11% per year

(10,000 people, %)

	Yr. 2022	2023	2024	2025	2026	2017~2021	2022~2026
Population	5,163	5,161	5,158	5,152	5,146	-	-
Rate of increase	-0.12	-0.03	-0.06	-0.10	-0.13	0.19	-0.11

- Major change factors

Upside factor	Downside factor
<ul style="list-style-type: none"> Increased life expectancy Increase in net inflow of foreign population 	<ul style="list-style-type: none"> Continued low birth rate

During the first half of 2022, the number of births recorded its lowest level, and the number of deaths increased significantly due to the COVID-19 outbreak, and the natural decrease in the population recorded its largest figure ever. The number of births (127,138) and mortalities (193,768) in the first half of this year recorded the lowest number of births and the highest number of mortalities, respectively, since statistics were compiled. As a result of these influences, the natural increase in population (No. of births – No. of mortalities) recorded a decrease of 65,631 people, the largest decrease since 1983, when statistics began to be compiled.²⁾

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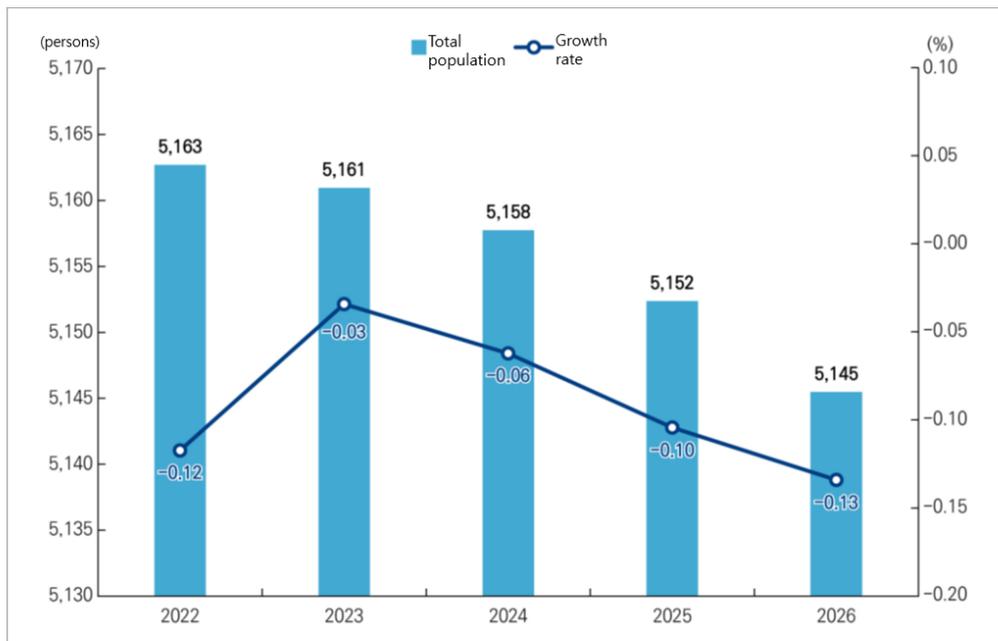
1) For the population projections, the base year was updated to 2020 to project S. Korea's population based on the data of the NABO Pilot Estimation of Domestic Population (2021), and the total population was projected by adding the foreigner forecast figures from the National Statistical Office (2021).

2) Statistics Korea, 「Population Trends in June」 Press release, 2022,8,24.

As the population decline trend is projected to continue due to the declining birth rate and acceleration of the aging population, the population of S. Korea is projected to decrease to 51.63 million in 2022 (-0.12% year-on-year). As the COVID-19 outbreak has waned, the rapid population decline is projected to ease somewhat in 2023, but the decline is projected to accelerate further afterwards, with the population growth rate expected to be -0.11% per year on average during the period 2022-2026. The trend in which the population increased at an average annual rate of 0.19% during the previous five years (2017-2021) has been converted to a population decline.

This trend of population decline is projected to continue, which is likely to have a significant impact on future economic growth and fiscal revenues and expenditures.³⁾ Through the 「Population Policy TF」, the government is reviewing ways to strengthen the adaptability to changes in the demographic structure from various angles, with discussions also underway on the ‘Basic Act on Population Policy’.⁴⁾

[Figure III-1] Outlook for Total Population and Growth Rate (2022~2026)



Source: The National Assembly Budget Office

3) In Korea, the Basic Act on Low Fertility and Aging Society was enacted in 2005, and the 1st to 4th Basic Plans were established and implemented afterwards. However, as the trend of low birth rate and aging population continues with the decline in projected population size, efforts are being made to respond to the declining population trend.

4) In joint with ministries concerned, 「2022 Economic Policy Direction」, 2021.12.20.

In joint with ministries concerned, 「New Government Economic Policy Direction」, 2022.6.16.

Section 2. Factors of Population Change 5)

1. Birth rate

- Between 2022 and 2026, the total fertility rate is expected to continue declining.

(People per female population aged 15-49)

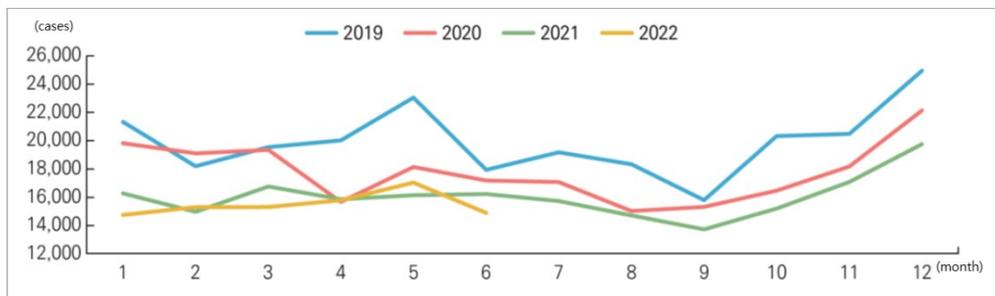
	Yr. 2022	2023	2024	2025	2026
Total fertility rate	0.76	0.74	0.71	0.70	0.69

- Major change factors

Upside factor	Downside factor
<ul style="list-style-type: none"> Increase in household income due to economic boom 	<ul style="list-style-type: none"> Declining marriage rate
<ul style="list-style-type: none"> Expansion of work-family life balance culture 	<ul style="list-style-type: none"> Decreased willingness to give birth

The number of births in the first half of 2022 was 127,138, a decrease of 8,116 (-6.0%) versus the same period last year. This is the lowest figure in the first half of the year since 1981, when statistics on the number of births began to be compiled. The number of marriages in May 2022 increased by 5.5% year-on-year, raising expectations for a recovery in marriage and birth rate, but in June, it decreased by 8.2%, recording the lowest number of cases at 14,898. It seems that the decrease in the number of births continues due to the decrease in marriage attributed to COVID-19 and the postponement of childbirth. Given that childbirth is postponed due to increased costs related to childbirth and childrearing, there is a possibility that household income will increase due to economic recovery in the future, with a positive impact of the spread of a work-life balance culture on the birth rate.

[Figure III-2] Marriage Trend by Month



Source: Statistics Korea

- 5) This is likely to be used as basic data for deliberation on legislation and budget settlement, and setting policy directions for responding to demographic change.

The figure below shows the number of births in S. Korea since 2010, with the number of births in 2010 at 470,000, followed by a decreasing trend after peaking at 485,000 in 2012. During the period 2010-2021, the rate of increase in the number of births averaged -4.2%.

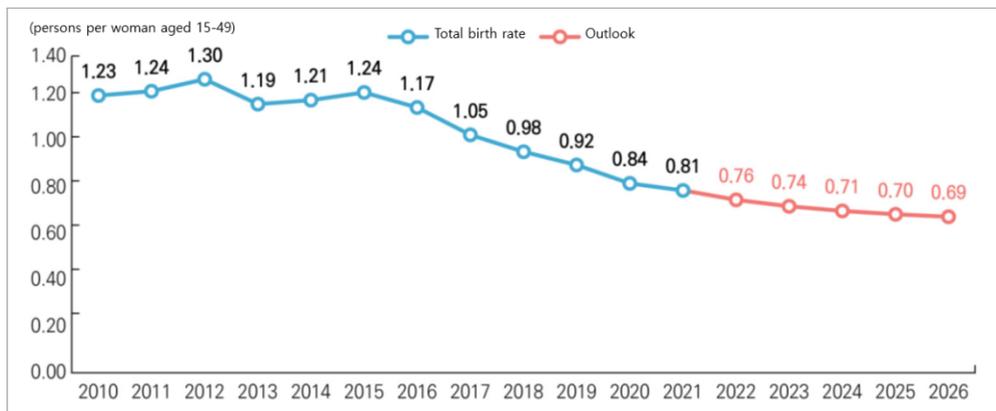
[Figure III-3] Number of Births (2010~2021)



Source: Statistics Korea

As a result of forecasting the total fertility rate reflecting these changes in the birth rate, it was found that it would drop to 0.69 in 2026. It was found that this decline in the total fertility rate affects a decrease in the number of births and leads to a decrease in the population in the future.

[Figure III-4] Total Fertility Rate Trends and Prospects



Source: The National Assembly Budget Office, Statistics Korea

[BOX 5] Comparison of Projections for Total Fertility Rate

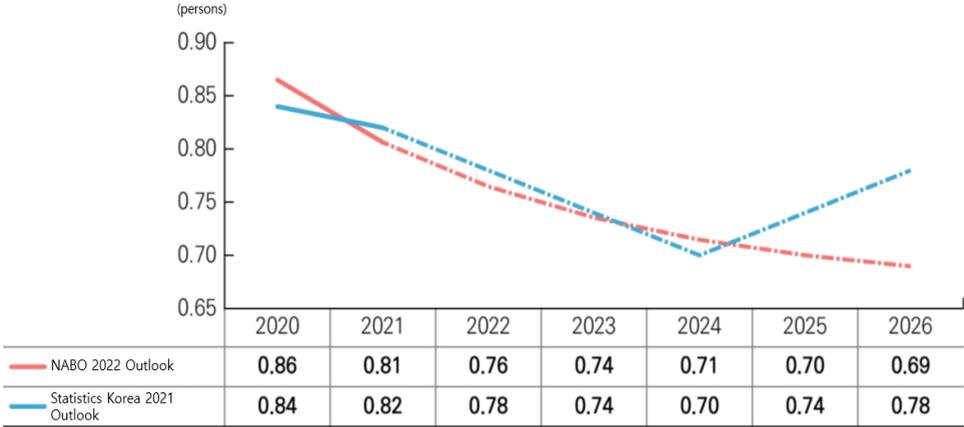
- Korea's total fertility rate is under 1, one of the lowest in the world.
 - In 2018, Korea recorded a total fertility rate of under one, and since then, marriage delays and low birth rates have continued due to the effects of COVID-19.

(People per female population aged 15-49)

	Yr. 2015	2016	2017	2018	2019	2020	2021
Total fertility rate	1.24	1.17	1.05	0.98	0.92	0.84	0.81

- NABO predicts that the total fertility rate will continue to decline.
 - The National Statistical Office forecasts that the total fertility rate will gradually rise to the long-term trend after falling.
 - In projecting the future population, the National Statistical Office adjusts the bottoming point of the total fertility rate from 0.78 in 2022 (projected in 2019) to 0.7 in 2024 (projected in 2021), and assumes that it will gradually increase to 1.0 in 2031 afterward.
 - NABO Korean population projections forecast that the total fertility rate will continue to decline.
 - As a result of updating the base population and projections, the total fertility rate is projected to drop to 0.69 in 2026.

[Comparison of Prospects for the Total Fertility Rate of Koreans]



Source: The National Assembly Budget Office, Statistics Korea (2021)

2. Mortality rate

- From 2022 to 2026, life expectancy is expected to continue increasing.

(Life expectancy, age)

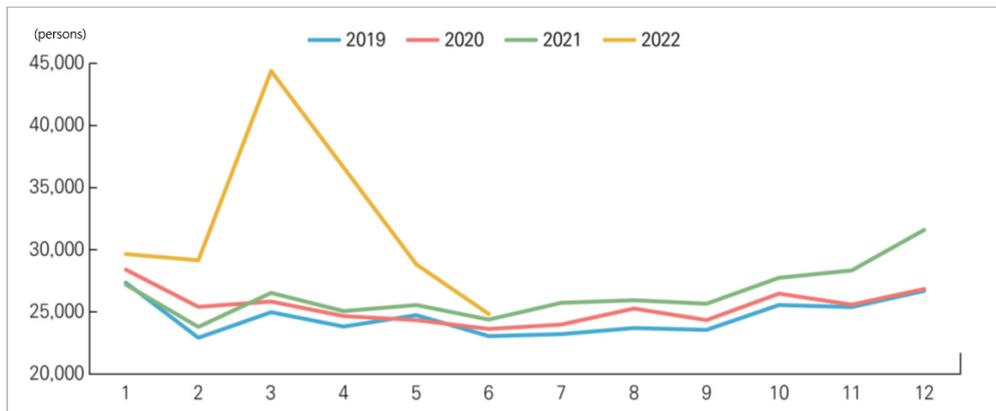
	Yr. 2022	2023	2024	2025	2026
Male	81.0	81.3	81.7	82.0	82.3
Female	86.7	87.0	87.2	87.5	87.7

- Major change factors

Upside factor	Downside factor
<ul style="list-style-type: none"> Increased prevalence 	<ul style="list-style-type: none"> Slowing the spread of COVID-19
	<ul style="list-style-type: none"> Expansion of health promotion improvement

The number of deaths in the first half of 2022 was 193,768, an increase of 41,141 (27.0%) versus the same period last year. The number of deaths is also the highest since 1983, when statistics began to be compiled. The number of deaths is steadily increasing due to the aging population, while the number of deaths increased significantly from March to May this year due to the resurgence of COVID-19.⁶⁾

[Figure III-5] Monthly Death Trend (2019~2022)

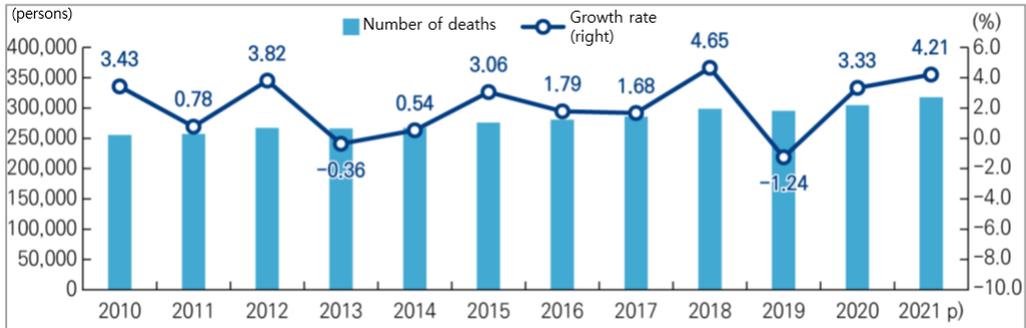


Source: Statistics Korea

6) The National Statistical Office announced the data of 「Population Trends in March 2022」 (2022.5.25.), and explains that as the number of deaths continues to increase due to the aging population, March was the time when the spread of Omicron was the most severe, showing that COVID-19 directly or indirectly affected the country.

The figure below shows the number of deaths in S. Korea since 2010. The number of deaths gradually increased from 255,000 in 2010 to 318,000 in 2021 (tentative). Although the rate of increase fluctuates on an annual basis, the average rate of increase in the number of deaths between 2010 and 2021 was 2.14%.

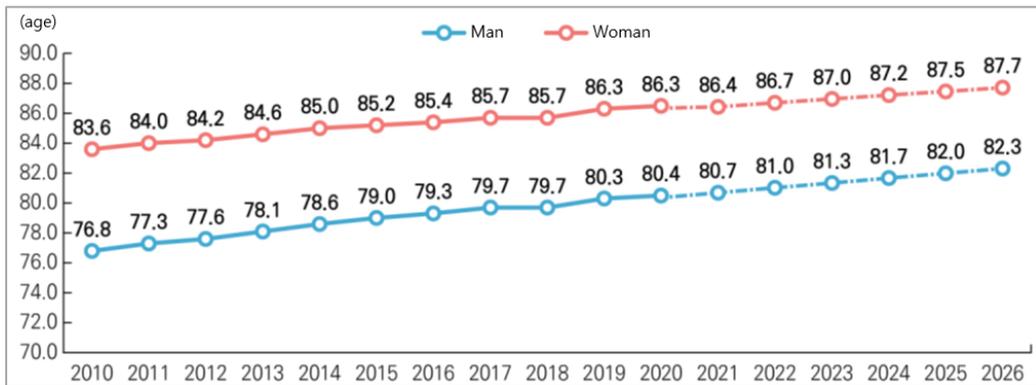
[Figure III-6] Trends in the No. of Deaths (2010~2021)



Source: Statistics Korea

As a result of projecting life expectancy by reflecting these changes in the number of deaths, male life expectancy increased by 1.9 years from 80.4 years in 2020 to 82.3 years in 2026, and female life expectancy increased by 1.4 years from 86.3 years in 2020 to 87.7 years in 2026, and this upward trend is forecast to continue.⁷⁾

[Figure III-7] Outlook for Life Expectancy



Source: The National Assembly Budget Office, Statistics Korea

7) Life expectancy is the average number of years expected to live in the future, and the life expectancy of a person born at age 0 is also called life expectancy at birth. Life expectancy rises as mortality rates by gender and age decrease.

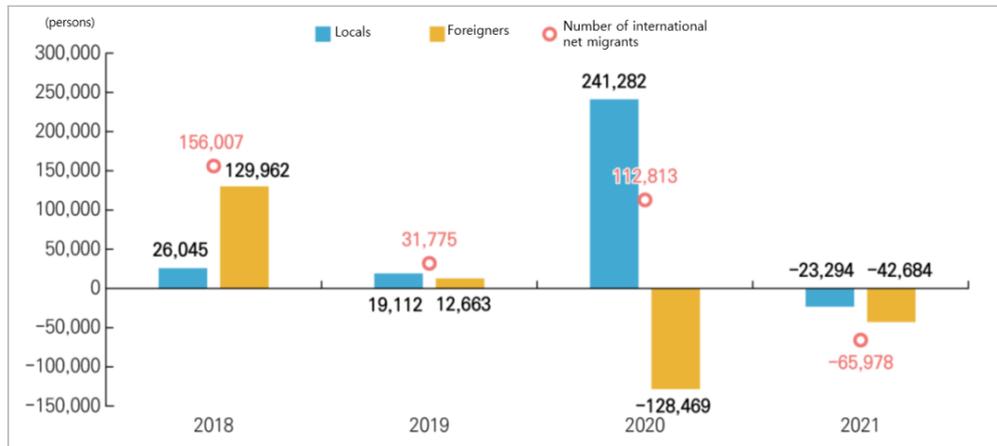
3. International migration

- The international migration rate between 2022 and 2026 is estimated by applying the average migration rate by gender and age.
- Major change factors

Upside factor	Downside factor
<ul style="list-style-type: none"> • Slowing the spread of COVID-19 • Expanding the influx of migrant workers 	<ul style="list-style-type: none"> • Expansion of net outflow of Koreans who repatriated to S. Korea

Due to the COVID-19 outbreak, there was a net outflow of 128,000 foreigners in 2020 but a net inflow of 240,000 Koreans, resulting in a net international population inflow of 113,000 people. However, in 2021, a total of 66,000 people were net outflows, with both domestic and foreign residents net outflows. In the future, if the spread of COVID-19 slows down and the net inflow of foreigners expands to the previous year's level, the number of international net migrants will increase, serving as a positive factor for Korea's population growth. In contrast, the expansion of the net outflow of Koreans who had repatriated to S. Korea due to COVID-19 is projected to serve as a downside factor of the population size.

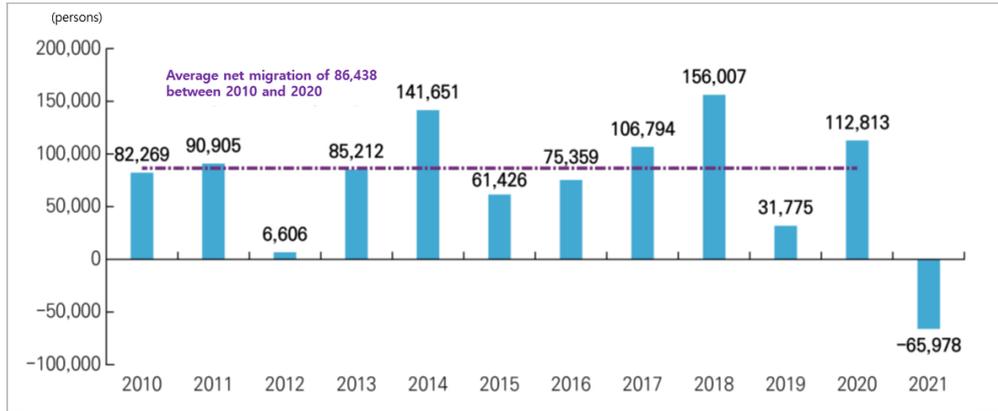
[Figure III-8] Trends in Annual International Migration of Koreans & Foreigners



Source: Statistics Korea

The figure below shows the net inflow of international population to S. Korea since 2010. Between 2010 and 2020, there was an average net inflow of 86,000 people, but a net outflow of international population occurred in 2021 due to the impact of COVID-19.

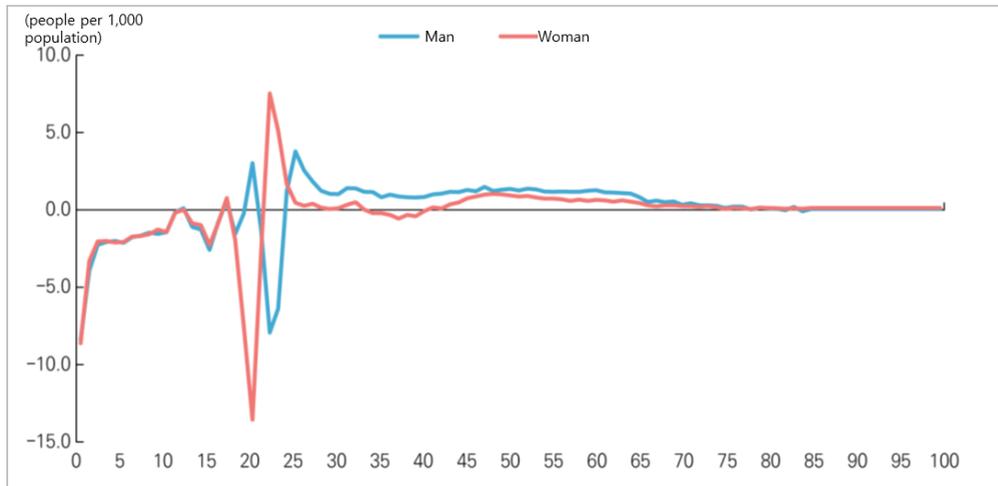
[Figure III-9] Trends in Net Inflow of International Population (2010~2021)



Source: Statistics Korea

Based on the size of the net population migration for the last 7 years (2013-2019), the international migration rate of the population by gender and age was calculated, and the average international migration rate for the five years excluding the lowest and highest values was calculated and applied to the estimation of the number of net population migration.

[Figure III-10] International Net Migration Rate by Gender and Age



Source: Statistics Korea

Chapter 2. Employment Volume



Section 1. Outlook for 2023

- In 2023, the number of employed is expected to increase by 86,000 (0.3%) from the year before.
 - The employment rate is expected to be 61.9%, down 0.1%p from the year before (forecast at 62.0%).
- The labor force participation rate in 2023 is expected to be 64.1%, up 0.2%p from the year before (forecast at 63.9%).
- The unemployment rate in 2023 is expected to record 3.4%, 0.4%p higher than the year before (forecast at 3.0%).

(Compared to the same month last year, 10,000 people, %)

	Yr. 2021	2022		2023	
	Yearly	1H	2H ^f	Yearly ^f	Yearly ^f
Change in the No. of employed (increase rate)	36.9 (1.4)	94.1 (3.5)	64.9 (2.4)	79.5 (2.9)	8.6 (0.3)
Employment rate	60.5	61.6	62.4	62.0	61.9
Labor force participation rate	62.8	63.7	64.0	63.9	64.1
Unemployment rate	3.7	3.2	2.8	3.0	3.4

Upside factor	Downside factor
<ul style="list-style-type: none"> • Normalization of foreign workforce introduction • Continued growth of non-face-to-face & digital transformation-related industries and recovery of the face-to-face service industry 	<ul style="list-style-type: none"> • Base effect of employment boom in 2022 • Slowing export growth due to global economic slowdown • Decreased private consumption due to a slowdown in the asset market & a rise in interest rates

1. Employment trends in the first half of 2022

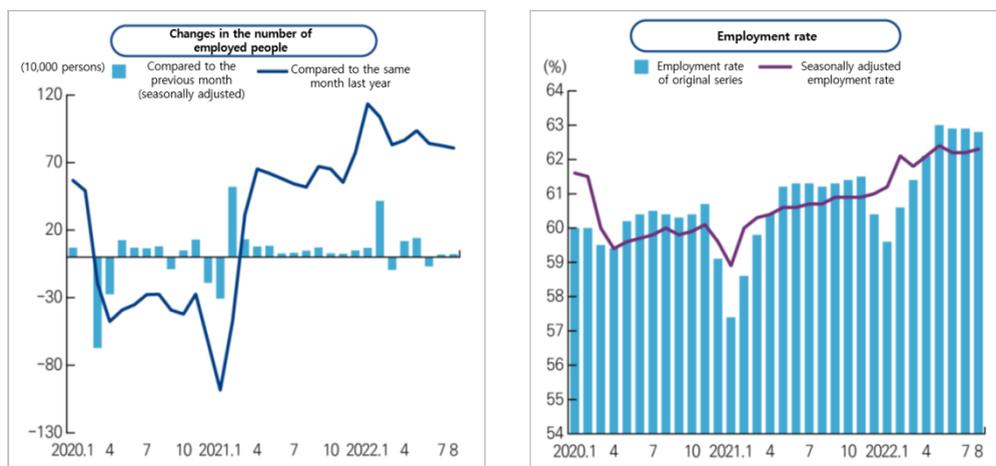
During the first half of 2022, employment continues to recover post-COVID-19. Despite the spread of COVID-19 at the beginning of the year, the high level of increase in the number of employed continues, and in the first half of the year, the number of employed increased by 941,000 (3.5%) versus the same period last year, and the employment rate was 61.6%, up 1.8%p versus the same period last year.

[Table III-1] Recent Trends in the No. of Employed and Employment Rate

	2020	2021	1H 2022
No. of employed (10,000 people)	2690.4	2,727.3	2785.8
(Versus the previous year, per 10,000 people)	-21.8	36.9	94.1
Employment rate (%)	60.1	60.5	61.6
(%p year-on-year)	-0.8	0.4	1.8

Source: Statistics Korea

[Figure III-11] Monthly Changes in the No. of Employed and Employment Rate

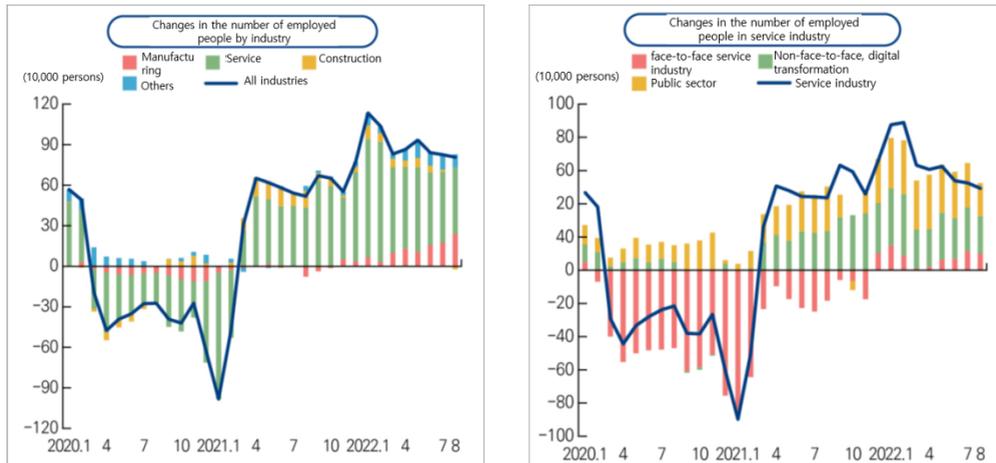


Source: Statistics Korea

By industry, the number of employed increased the most in the service industry by +692,000 year-on-year. Non-face-to-face and digital transformation-related industries and sectors with a high public share led the increase by +282,000 and +296,000, respectively, with the number of people employed in the face-to-face service industry, which had been on the decline until 2021, also increasing by +67,000. However, the increase in the number of employed in the service industry is gradually slowing during 2022. In contrast, the number of employed in the manufacturing sector increased by +99,000 year-on-year due to the strong exports, and the range of increase gradually expanded.

In addition, the number of employed increased in the construction industry (+67,000) and other industries (+82,000), indicating a generally good increase in the number of employed in all industries.

[Figure III-12] Monthly Changes in the No. of Employed by Industry



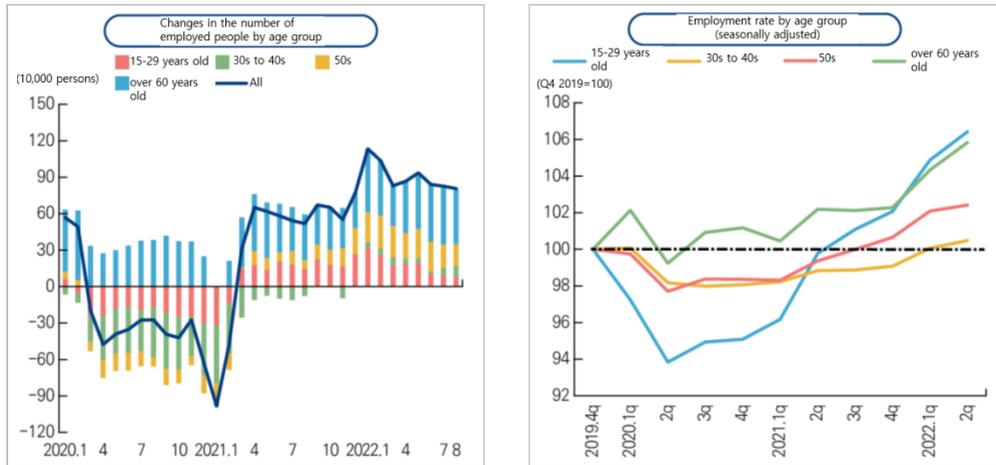
- Note: 1. Other industries refer to agriculture, forestry & fisheries, mining industry, and electricity & gas industry.
 2. Face-to-face service business refers to wholesale & retail business, lodging & restaurant business, educational service business, arts, sports, leisure business, and association, organization, personal service business.
 3. Non-face-to-face and digital transformation industries refer to professional, science, and technology industries, information & communication industries, and transportation & warehousing industries.
 4. Service sectors with high public sector refer to health, welfare business & public administration business.

Source: Statistics Korea

By age group, the number of employed increased the most in the elderly (60 years & older) by +443,000, and a good increase was also seen in the youth group (15-29 years old, +208,000) and in their 50s by +245,000. In contrast, the number of employed in their 30s and 40s increased only slightly by +45,000. However, since the population is declining in the case of those in their 30s and 40s, it is difficult to assert that employment is sluggish simply based on changes in the number of employed.⁸⁾ The employment rate (seasonally adjusted) for those in their 30s and 40s in the first half of 2022 was 77.5%, higher than the 4th quarter of 2019 at 77.3% pre-COVID-19.

8) Between 2017 and 2021, the population in their 30s and 40s (based on the economically active population census) decreased by about 214,000 people per year on average, and also decreased by 205,000 in the first half of 2022.

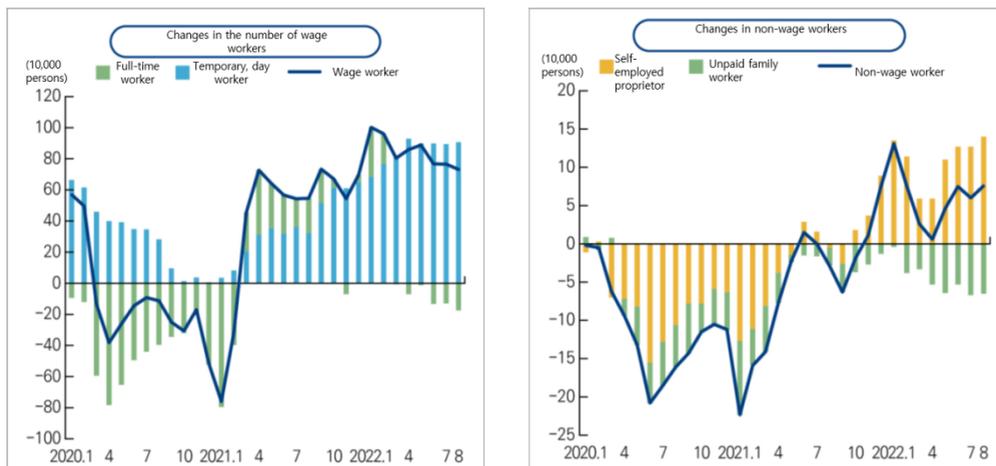
[Figure III-13] Monthly Changes in the No. of Employed and Employment Rate



Source: Statistics Korea

By occupational status, the number of wage earners increased significantly by +881,000, accounting for most of the increase in the number of employed. Among wage earners, regular workers and temporary workers increased by +832,000 and +16,000, respectively, while daily workers decreased by -111,000. Among non-wage workers, self-employed proprietors showed a steady increase of +101,000 in the first half, while unpaid family workers decreased by -41,000.

[Figure III-14] Monthly Change in the No. of Employed by Occupational Status



Source: Statistics Korea

The labor force participation rate in the first half of 2022 was 63.7%, which returned to the 63% level of 2019 pre-COVID-19. The labor force participation rate increased in most groups. By gender, the participation rate of women rose by +1.3%p, greater than that of men (+0.9%p year-on-year), while by age group, there was a significant increase in the youth group (15-29 years old, +2.3%p).

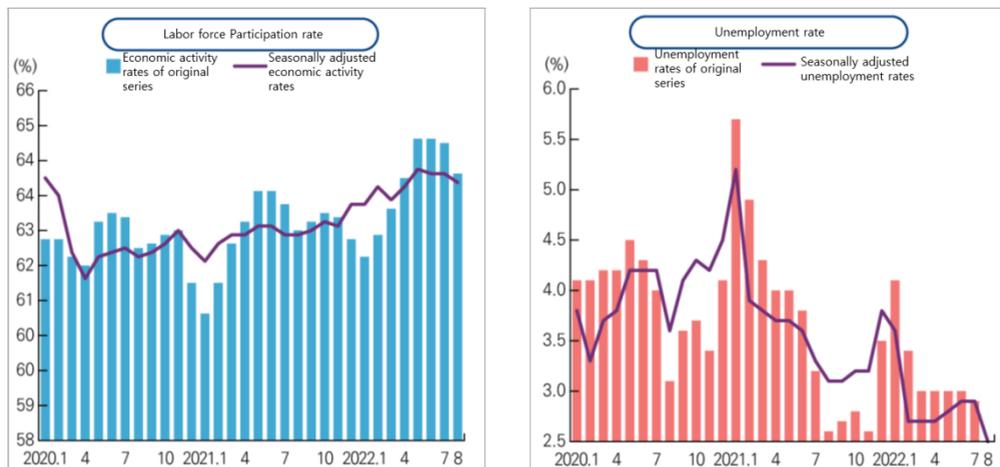
In the first half of 2022, the number of employed increased more than the economically active population, and the unemployment rate recorded 3.2%, down 1.2%p versus the same period last year. Given that both an increase in the labor force participation rate and a decrease in the unemployment rate occurred at the same time, it can be inferred that the rise in the labor force participation rate was attributed to an increase in labor demand. By gender, the male unemployment rate fell by -1.3%p more sharply than the -1.1%p drop for females, while by age, the youth group showed the largest drop at -2.7%p) in the unemployment rate among all age groups.

[Table III-2] Recent Trends in Labor Force Participation Rate and Unemployment Rate

	Yr. 2020	2021	1H 2022
Labor force participation rate (%)	62.5	62.8	63.7
(%p year-on-year)	-0.8	0.3	1.1
Unemployment rate (%)	4.0	3.7	3.2
(%p year-on-year)	0.2	-0.3	-1.2

Source: Statistics Korea

[Figure III-15] Monthly Trends in Labor Force Participation Rate and Unemployment Rate

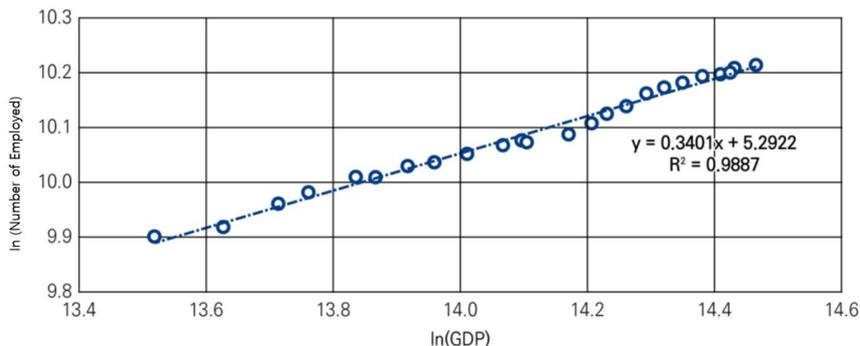


Source: Statistics Korea

[BOX 6] Review of the Increase in the No. of Employed in 2022

- In 2022, it is expected that there will be an exceptionally high increase in the number of employed.
 - The number of employed is expected to increase by 795,000 (2.9%) in 2022, which is an unprecedented increase that exceeds the existing correlation between GDP and the number of employed.
 - Between 1998 and 2021, when GDP rose by 1%, the number of employed increased by about 0.34% on average, and this correlation seems to have been maintained for more than 20 years (Refer to the figure below).
 - Therefore, it is common to expect an increase in the number of employed in the 200,000 range (0.8- 0.9%) under the 2022 economic growth rate forecast at 2.5%.

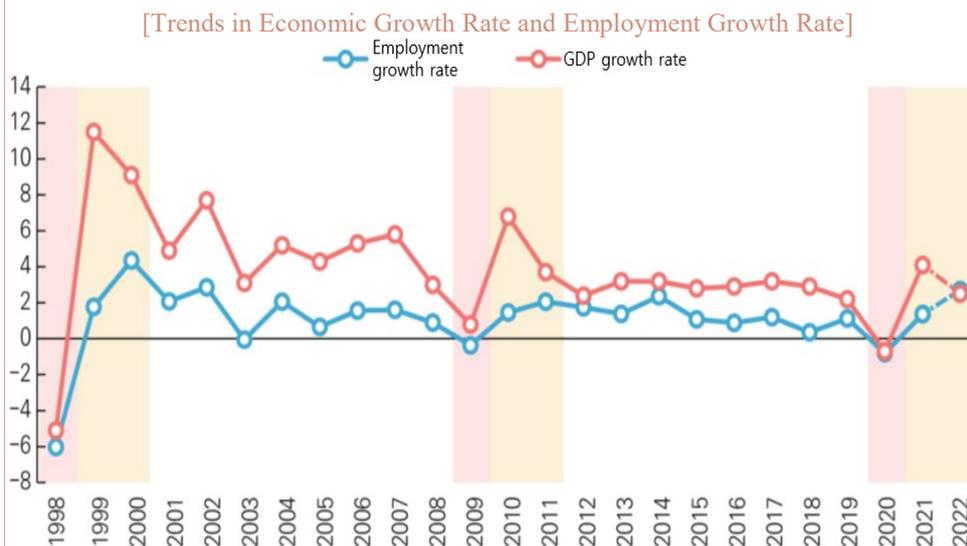
[Correlation between GDP and the No. of Employed (1998~2021)]



Source: The Bank of Korea, Statistics Korea

- However, this increase has also been shown in the course of overcoming the existing crisis.
 - In the course of recovery from the crisis, the growth rate of employment increased while the economic growth rate slowed.
 - During the 1998 foreign exchange crisis and the 2009 global financial crisis, the GDP growth rate rebounded significantly in the year following the crisis, and then the rate of increase slowed two years later.
 - In contrast, the number of employed increased more significantly two years after the crisis than in the year after the crisis, so the correlation between the employment growth rate and GDP growth rate was temporarily decoupled.

- o The rapid increase in the number of employed in 2022 can be seen as a pattern of two years after the crisis.



Note: 1. Red shading indicates the time of crisis (1998 foreign exchange crisis, 2009 global financial crisis, 2020 COVID-19), and yellow shading indicates 1-2 years after the crisis occurred.
 2. The solid line represents the actual value, and the dotted line represents the NABO forecast.

Source: The National Assembly Budget Office, the Bank of Korea

- This phenomenon is viewed to be attributed to changes in economic conditions at the time of crisis and recovery.
 - Two years after the crisis, it is possible that labor demand in industries that grew during the crisis and industries that recovered after being depressed due to the crisis overlapped, resulting in a slowdown in GDP growth but an increase in employment.
 - Due to the COVID-19 outbreak, health and welfare industries and industries related to non-face-to-face and digital transformation have achieved great growth, while the number of employed continues to increase in the first half of 2022.
 - In contrast, in the first half of 2022, with the lifting of social distancing, the number of people employed in the face-to-face service industry, which had shrunk, rebounded to increase.
 - Due to the normalization of the world economy and the activation of trade following the transition to with COVID policy, the manufacturing industry is also booming and the number of employed is increasing.
 - However, it is necessary to wait and see whether these changes in economic conditions lead to structural changes or are only temporary.

[BOX 7] Analysis of the Contribution to the Increase in the No. of Employed in the First Half of 2022 ⁹⁾

- (By industry) The service industry contributed the most to the increase in the number of employed in the first half of 2022.
 - In the first half of 2022, the number of employed in the service industry increased by 692,000, contributing 73.5% of the total increase in employment.
 - Industries with a high share of the public sector (health, welfare & public administration industry) contributed 31.5% to the total employment increase, and industries related to non-face-to-face digital transformation contributed 30.0%.
 - In contrast, the face-to-face service industry showed a low contribution of 7.1%.
 - In the first half, the number of employed increased in manufacturing, construction, and other industries, showing a positive contribution.
 - Manufacturing contributed 10.5%, construction 7.1%, and other industries 8.7%

[Analysis of Contribution to the No. of Employed (By industry)]

	No. of employed in the 1st half of 2021 (10,000 people)	No. of employed in the 1st half of 2022 (10,000 people)	Difference (B-A)	Contribution (%)
Total	2,691.7	2,785.8	94.1	100.0
By industry				
Manufacturing	439.3	449.2	9.9	10.5
Service industry	1,899.9	1,969.1	69.2	73.5
Related to non-face-to-face & digital transformation	362.7	390.9	28.2	30.0
Health, welfare & public administration industry	354.8	384.4	29.6	31.5
Face-to-face service industry	886.4	893.1	6.7	7.1
Construction	205.1	211.8	6.7	7.1
Other industries	147.7	155.9	8.2	8.7

Note: 1. Non-face-to-face/ digital transformation industries refer to professional/ science/ technical industries, information/ communication industries, and transportation/ warehousing industries.

2. Face-to-face service business refers to wholesale & retail business, lodging & restaurant business, educational service business, arts/ sports/leisure business, and association/ group/ individual service business.

3. Other industries refer to agriculture, forestry & fisheries, mining, electricity & gas industries.

Source: National Statistical Office, prepared by the National Assembly Budget Office based on 「Economically Active Population Survey」

9) The contribution to the increase in the number of employed by sector was derived as an “increase in the number of employed by sector/ increase in the total number of employed”.

- (By age) The elderly contributed the most to the increase in the number of employed in the first half of 2022.
 - In the first half of 2022, the number of employed aged 60 or older increased by 443,000, contributing 47.1% to the total increase in the employed.
 - The number of employed in the youth (15-29 years old) and those in their 50s also contributed more than 20%, while the number of employed in their 30s and 40s showed a low contribution at 4.8%.

- (By occupational status) The increase in the number of employed in the first half of 2022 is largely attributable to the increase in the number of wage earners.
 - In the first half of 2022, the number of wage earners increased by 881,000, contributing 93.6% to the increase in the employed.
 - The number of non-wage workers increased by 60,000, representing a contribution of 6.4%
 - Self-employed workers increased by 101,000, contributing 10.7%, while unpaid family workers decreased by 41,000, contributing -4.3%.

[Analysis of Contribution to the No. of Employed (By age, occupational status)]

	No. of the employed in the first half of 2021 (10,000 people)	No. of the employed in the first half of 2022 (10,000 people)	Difference (B-A)	Contribution (%)
	2,691.7	2,785.8	94.1	100.0
By age				
The youth (15-29 years old)	381.2	402.1	20.8	22.1
30s to 40s	1,155.6	1,160.1	4.5	4.8
50's	634.1	658.5	24.5	26.0
60 or older	520.9	565.2	44.3	47.1
By occupational status				
Wage earners	2,045.3	2,133.4	88.1	93.6
Non-wage workers	646.5	652.5	6.0	6.4
Self-employed workers	548.0	558.1	10.1	10.7
Unpaid family workers	98.6	94.5	-4.1	-4.3

Source: National Statistical Office, prepared by the National Assembly Budget Office based on 「Economically Active Population Survey」

2. Employment Outlook for 2022 and 2023

In the second half of the year, the number of employed increased by 649,000, and in 2022, the number of employed is forecast to increase by 795,000 year-on-year. The number of employed in the second half is a decrease of about 291,000 compared to the first half. This is partly attributable to the base effect of the expansion of the number of employed in the second half of 2021. In addition, the GDP growth rate is forecast to drop from 2.9% in the first half to 2.3% in the second half due to the impact of global uncertainties and tight monetary policy following inflation, and recently, the negative outlook on the economy has expanded and the consumer sentiment index is rapidly deteriorating. This economic slowdown and deterioration in consumer sentiment are also expected to have a negative impact on the increase in the number of employed in the second half of the year. However, if the quota expansion and rapid entry for migrant workers in the second half of 2022 announced by the government are carried out as planned, the slowdown of the increase in the number of employed can be slightly alleviated.

The employment rate in the second half of 2022 recorded 62.4%, and the employment rate in 2022 is forecast to reach 62.0%. The projected employment rate for the second half is about 0.8%p higher than the first half, but this is largely due to seasonal factors.¹¹⁾ Looking at the year-on-year change in the employment rate, it increased by 1.8%p in the first half, but the rate of increase narrowed to 1.2%p in the second half. The labor force participation rate in the second half of 2022 recorded 64.0%, and the labor force participation rate in 2022 is forecast to reach 63.9%. The unemployment rate fell to 2.8% in the second half of 2022, and the unemployment rate in 2022 is forecast to be 3.0%.

In 2023, the number of employed is projected to increase by 86,000 year-on-year, and the employment rate is forecast to record 61.9%. The economically active population is projected to increase by 221,000, resulting in a slight increase in the labor force participation rate to 64.1%, and the unemployment rate to rise to 3.4% as the increase in the number of employed does not match the increase in the economically active population.

The main upside and downside factors that will determine the 2023 outlook can be broken down into several categories. In 2022, there was a significant increase in the number of employed, exceeding the existing correlation between GDP and the number of employed¹²⁾. Due to the rapid increase in the number of employed, the number of employed is forecast to increase at a lower level than the economic growth rate over the next few years.

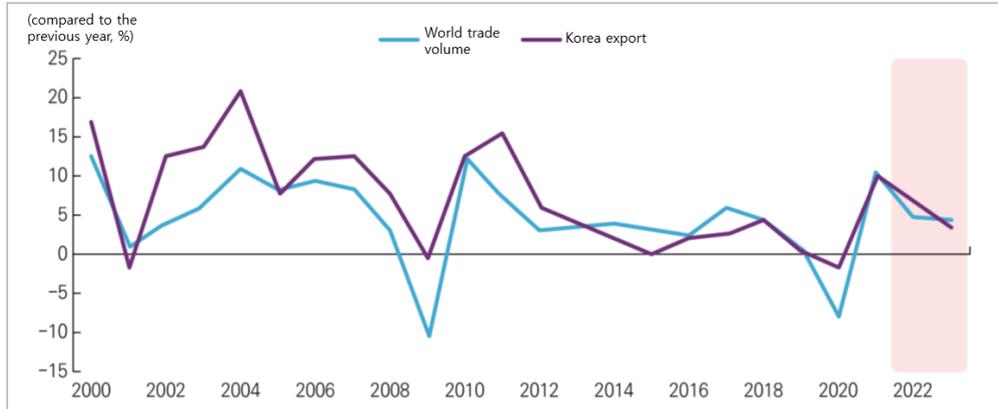
10) At the emergency economic ministers meeting in August 2022, the government announced that it would promote the quota expansion and rapid entry for migrant workers to resolve the recent labor shortage.

11) The employment rate has shown a seasonal pattern, reaching its lowest point in January, rising gradually, peaking in June and July, and then falling. Also, on average, the employment rate is higher in the second half than in the first half.

12) Details about this are described in [Box 6].

In 2023, the global economy and international trade are expected to contract due to the escalating trade conflict between the U.S. and China, the economic slowdown following major countries' monetary tightening policies, and the looming war in Ukraine. These effects can affect domestic demand as well as exports of domestic companies, which can serve as a downside factor to employment.

[Figure III-16] World Trade Volume Trends and Forecasts

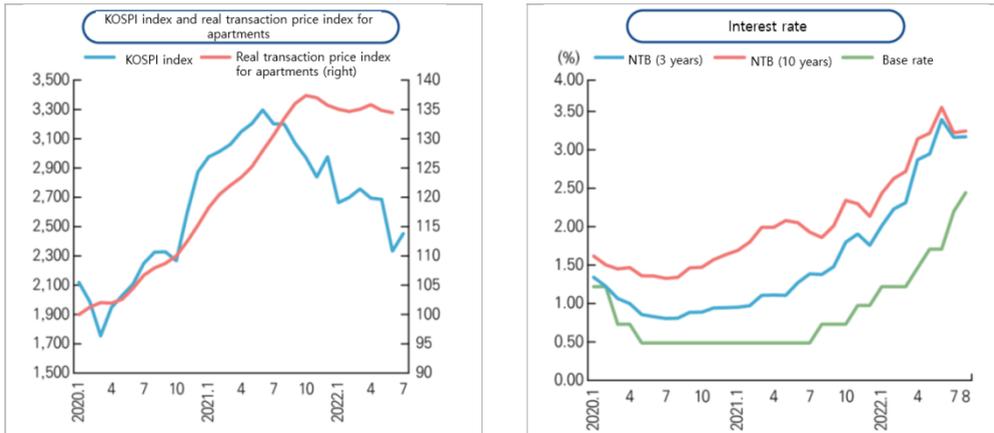


Note: Forecasts after 2022 (shaded)

Source: IMF, "World Economic Outlook" Database (April 2022)

In 2023, there is a possibility that private consumption will contract due to the impact of a slowdown in the asset market and rising interest rates. The KOSPI index has continued its downward trend since its peak in June 2021 (3296.7), while the real housing transaction price (apartment), which has risen rapidly in recent years, is gradually declining after peaking in October 2021. In addition, interest rates continue to rise due to tight monetary policy in response to inflation, putting a burden on the Korean economy with a high share of household debt. If asset price declines and high interest rates continue in 2023, private consumption could shrink, leading to a slowdown in employment.

[Figure III-17] Changes in Asset Prices and Interest Rates

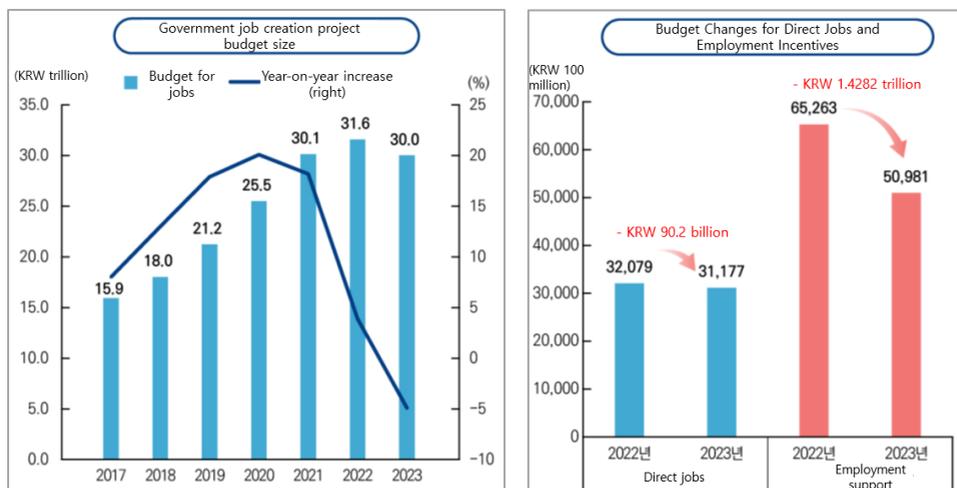


Source: Korea Exchange, Korea Real Estate Board

Source: The Bank of Korea

The government's direct job creation project and reduction of employment subsidies are likely to serve as a downside factor to employment in 2023. According to the recently announced budget for 2023, the government reduced the budget for job creation projects, which have been continuously increasing for the past few years, by 4.9% year-on-year. In particular, the government announced plans to reduce direct job creation projects (KRW -90.2 billion year-on-year) and employment subsidies (KRW -1,428.2 billion). As a result, the number of people employed in direct jobs next year is forecast to be 983,000, a decrease of 75,000 compared to this year. The adjustment of the job creation project budget has the purpose of normalizing the job creation project in response to COVID-19 to the normal level and increasing the efficiency of the project through restructuring, etc., but in the short term, it may have the effect of slightly shrinking employment.

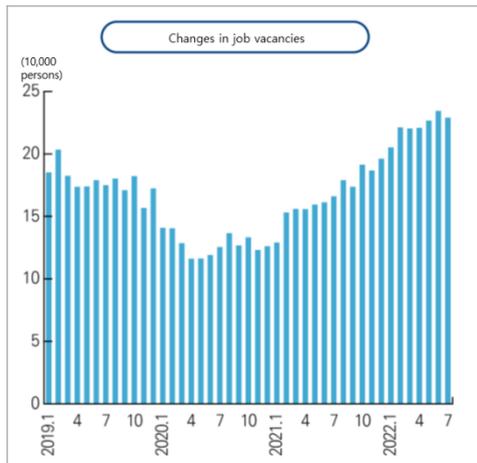
[Figure III-18] Budget for Job Creation Projects and Scale of Direct Jobs



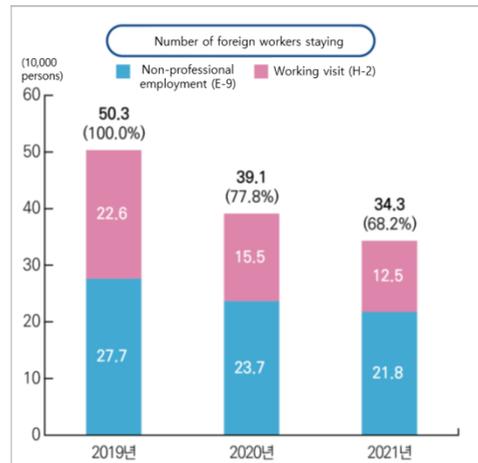
Source: Ministry of Employment and Labor press release, KRW 30.0 trillion in the 2023 job creation budget, a decrease of KRW 1.5 trillion year-on-year (2022. 8. 30.)

In contrast, normalizing the inflow of migrant workers is forecast to contribute to an increase in the number of employed. In the first half of 2022, despite the high level of increase in the number of employed, the number of vacant jobs steadily increased.¹³⁾ In June 2022, the number of vacant jobs was 234,000, its largest level since February 2018. Although the number of vacant jobs decreased somewhat in July, manufacturing, wholesale and retail businesses, and lodging/ restaurant businesses with fewer than 300 employees are still experiencing difficulties in manpower supply. The lack of migrant workers is pointed out as the cause of this labor shortage. In 2021, the scale of stay for non-professional employment (E-9) and Koreans visiting for employment (H-2) declined to 68.2% of the level in 2019 pre-COVID-19, and in 2022, quotas for each industry were set conservatively for reasons such as quarantine, so the scale of inflow of foreigners fell short of actual demand.¹⁴⁾ If the inflow of migrant workers is normalized from 2023, the labor shortage in some industries will be resolved, and they can have a positive impact on the increase in the number of employed.¹⁵⁾

[Figure III-19] Changes in Job Vacancies and the No. of Migrant Workers



Source: Ministry of Employment and Labor



Source: Ministry of Justice

- 13) A vacant job refers to a job that a business is recruiting for and can start working within one month.
- 14) In joint with ministries concerned, 「Emergency Economic Ministers Meeting: Support Plan to Resolve Recent Labor Shortage」, 2022. 8. 8.
- 15) However, there is a possibility that the positive effect of the normalization of overseas manpower influx on the increase in the number of employed may not be so great. Song Sang-yoon and Bae Ki-won (2022a) pointed out the expansion of labor supply among the youth and elderly as the reason for the high increase in the number of employed in 2022. In particular, in the case of the elderly, it was found that the number of people employed in production, field work, and agriculture, forestry and fishery work in small businesses with less than 30 employees increased, and migrant workers and the elderly may form a competitive relationship for these jobs. If migrant workers replace older workers in the field, the increase in the number of employed due to the normalization of the influx of migrant workers will be limited.

The high increase in the number of employed in 2022 is due to the recovery of labor demand in the face-to-face service industry, which had contracted during the COVID-19 period, while continuing high labor demand in industries related to non-face-to-face digital transformation and health and welfare industries that grew during the COVID-19 period.¹⁶⁾ If the growth of non-face-to-face and digital transformation-related industries and the recovery of face-to-face services continue in 2023, it will have a positive impact on the employment situation. In addition, if this situation leads to structural changes, there is a possibility that employment will continue to improve in the future.

16) Details about this are described in [BOX 6].

Section 2. Mid-Term Outlook¹⁷⁾

- Between 2022 and 2026, the number of employed will increase by an average of 243,000 per year.
 - Compared to the past 5 years (annual average of 173,000 between 2017 & 2021), the rate of increase will increase.
 - However, this is due to the rapid increase in 2022, and the increase is likely to slow significantly from 2023.

(Year-on-year, annual average, 10,000 people)

Yr. 2022	2023	2024	2025	2026	2017~ 2021	2022~ 2026
79.5	8.6	10.3	12.1	11.3	17.3	24.3

- Between 2022 and 2026, the employment rate will record an average of 62.0%.
 - 1.4%p increase compared to the past 5 years (606,000 on average between 2017 and 2021).
 - After 2023, the number of employed will show a low growth rate, but the growth rate of the population aged 15 and over is likely to slow down significantly, and the employment rate continue at 61.9-62.0%.

(Annual average, %)

Yr. 2022	2023	2024	2025	2026	2017~ 2021	2022~ 2026
62.0	61.9	61.9	62.0	62.0	60.6	62.0

- Between 2022 and 2026, the labor force participation rate will record an average of 64.2%.
 - It is expected to increase by 1.2%p compared to the past 5 years (63.0% on average between 2017 and 2021).
 - It continues to rise for the next 5 years due to the increase in the female and elderly labor force participation rate.

(Annual average, %)

Yr. 2022	2023	2024	2025	2026	2017~ 2021	2022~ 2026
63.9	64.1	64.3	64.3	64.4	63.0	64.2

- Between 2022 and 2026, the unemployment rate will record an average of 3.5%.
 - It is expected to decrease by 0.3%p compared to the past 5 years (3.8% on average between 2017 and 2021).
 - However, this is largely attributable to the low level of unemployment in 2022, rising to 3.7% from 2024.

(Annual average, %)

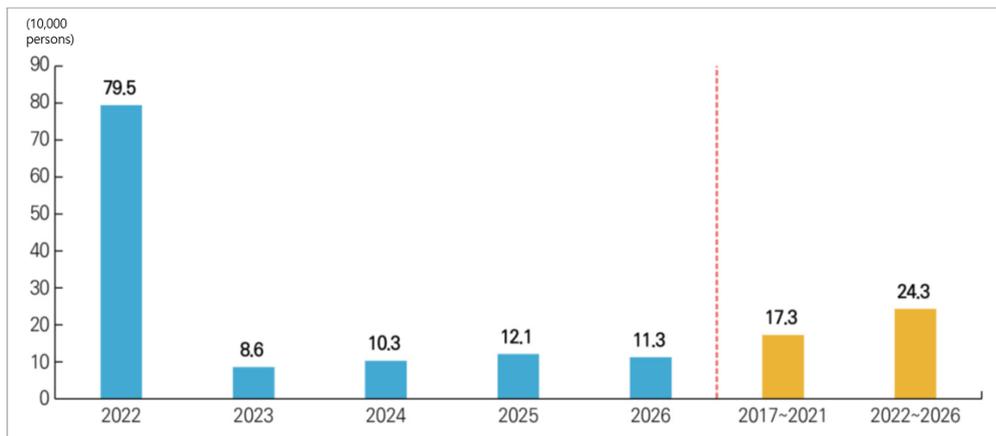
Yr. 2022	2023	2024	2025	2026	2017~ 2021	2022~ 2026
3.0	3.4	3.7	3.7	3.7	3.8	3.5

17) It can be used as basic data for setting future employment policy directions through forecasts on labor supply and demand. It can be used for estimating the number of earned income tax payers, the number of national pension and employment insurance subscribers, etc.

Between 2022 and 2026, the number of employed is forecast to increase by an average of 243,000 per year. This is an increase of about 71,000 compared to the increase of +173,000 for the past five years (2017-2021). However, the increase in the number of employed for the next five years is largely attributable to the high increase (+795,000) in the number of employed in 2022. Excluding 2022, the number of employed is forecast to increase by an average of 106,000 per year during the four years from 2023 to 2026, which falls short of the average increase for the past five years. The low growth in the number of employed from 2023 is largely attributable to the decline in economic growth. After recording 2.5% in 2022, Korea's economic growth rate is forecast to decline to an average of 2.2% between 2023 and 2026.¹⁸⁾ In addition, with the unexpectedly large increase in the number of employed in 2022, it is expected that the increase in the number of employed, which is lower than the economic growth rate, will appear in the future. Since the IMF foreign exchange crisis, Korea's economic growth rate and employment growth rate seem to have maintained a solid correlation. Even if the correlation between the two variables is temporarily displaced, a phenomenon of returning to the existing correlation is observed (refer to [Box 6]).

Therefore, in this outlook, it is evaluated that the rapid increase in the number of employed in 2022 will serve as a downside factor in the increase in the number of employed after 2023, gradually returning to the balance between the economic growth rate and the employment increase rate.

[Figure III-20] Changes in the No. of Employed in the Mid Term

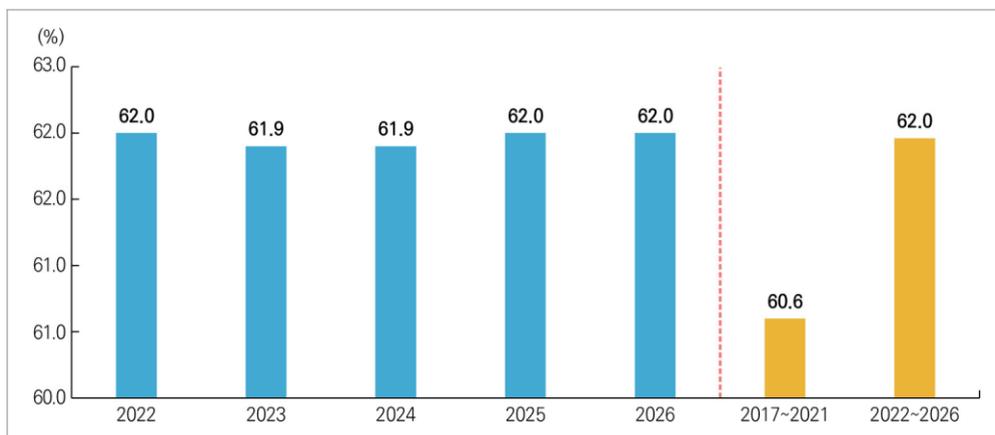


Source: The National Assembly Budget Office, Statistics Korea

18) More details on the economic growth rate projections are explained in 「Economic Outlook for 2023 and the Mid-Term I: Expenditure Sector」.

The employment rate from 2022 to 2026 is forecast to average 62.0%. This is 1.4%p higher than the average employment rate of 60.6% during the past five years (2017-2021). The employment rate, which recorded 62.0% due to a large increase in the number of employed, is projected to continue at 61.9- 62.0% until 2026. This is because the increase in the number of employed, the numerator of the employment rate, will decrease significantly from 2023, but the population aged 15 and over, the denominator, will also show a slow increase.¹⁹⁾

[Figure III-21] Outlook for Mid-Term Employment Growth



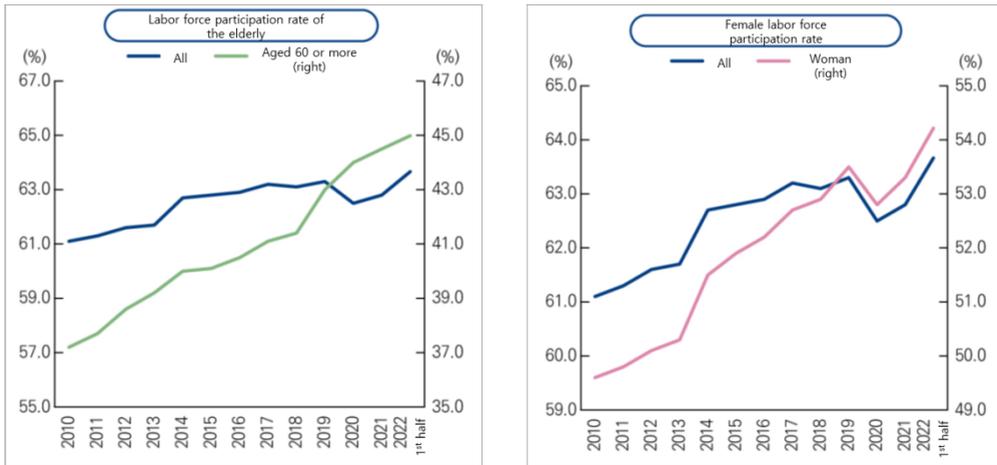
Source: The National Assembly Budget Office, Statistics Korea

While the growth rate of the population aged 15 and over will slow down over the next five years, the elderly population is projected to increase rapidly. As a result, the labor force is rapidly aging, and the labor supply structure is forecast to undergo rapid changes. However, the overall labor force participation rate is forecast to continue to rise until 2026, reaching 64.4% in 2026 due to the rise in the labor force participation rate of women and the elderly. Over the past 10 years, women's labor force participation rate has risen at a faster rate than men's, and it is forecast to continue to rise over the next five years. In addition, the labor force participation rate of the elderly is forecast to rise over the next five years due to the entry of the baby boom generation into the elderly and the rise in the age of eligibility for the national pension.²⁰⁾

19) From 2022 to 2026, it is assumed that the population aged 15 and over will increase by about 0.3 to 0.4% per year.

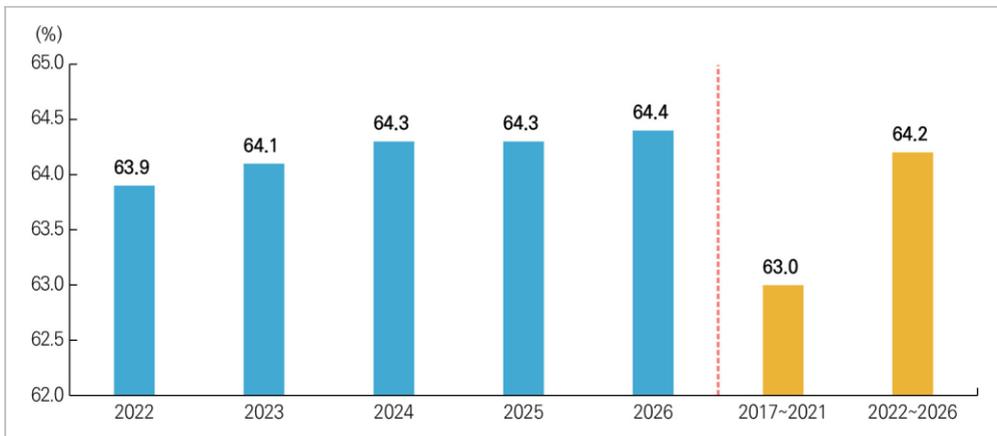
20) Song Sang-yoon and Bae Ki-won (2022b), while analyzing the factors of recent labor supply expansion, showed that the increase in the non-marriage rate among young women is one of the factors behind the recent increase in the labor force participation rate. In addition, as for the elderly, it was analyzed that the labor supply was expanded due to financial reasons (need for funds, living expenses, etc.).

[Figure III-22] Trends in Labor Force Participation Rate of the Elderly and Women



Source: Statistics Korea

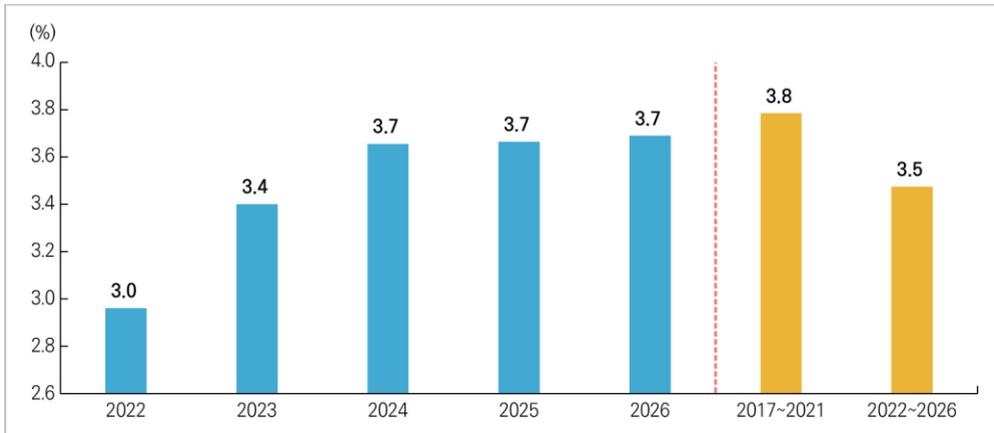
[Figure III-23] Outlook for Mid-Term Labor Force Participation Rate



Source: The National Assembly Budget Office, Statistics Korea

The unemployment rate is projected to rise to 3.4% in 2023 and reach 3.7% in 2024 as the increase in the number of employed does not match the increase in the economically active population over the next five years.

[Figure III-24] Outlook for Mid-Term Unemployment Rate



Source: The National Assembly Budget Office, Statistics Korea

The factors that determine employment indicators in the mid term can be examined in the following ways. The most important factor affecting the employment index is the economic growth rate. The main input factors for production are labor and capital, so an increase in output (= economic growth) directly affects labor demand (the number of employed and working hours) and price (wage). In addition, the increase in production and the resulting increase in labor demand can reduce the opportunity cost of labor search and expand labor supply (labor force participation rate).²¹⁾

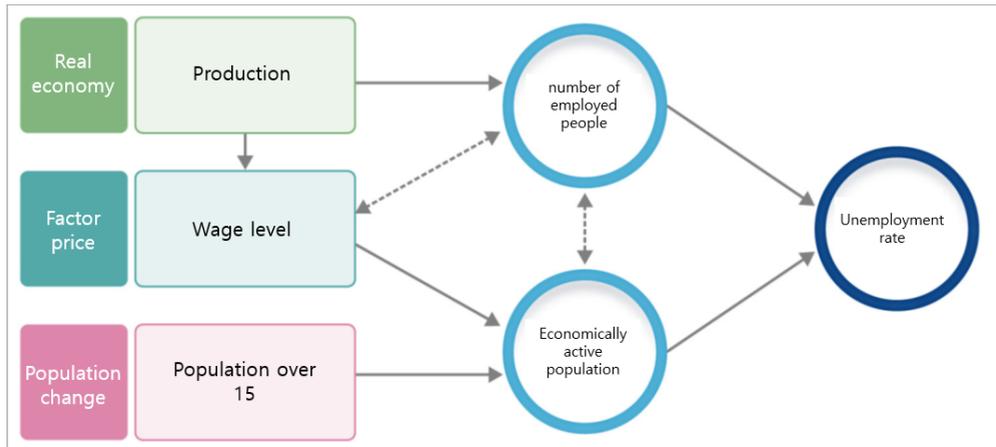
Wages, the price of labor, can affect the supply and demand for labor. When the wage level rises, employers have a greater incentive to not hire workers and replace them with capital assets such as machinery.²²⁾ In contrast, as wage levels rise, workers have a greater incentive to supply labor, which can lead to an increase in the labor force participation rate. Lastly, the size of the population aged 15 and over who can participate in production activities is directly related to the size of the economically active population.

[Figure III-25] below shows the correlation between employment indicators and their major determinants. Employment indicators for the period 2022-2026 are projected based on this correlation.

21) Ahn Joo-yeop (2001)

22) However, in this outlook, it is assumed that labor input decisions are inelastic to wages, given that short-term adjustment of capital input can be difficult.

[Figure III-25] Correlation between Employment Indicators and Major Determinants



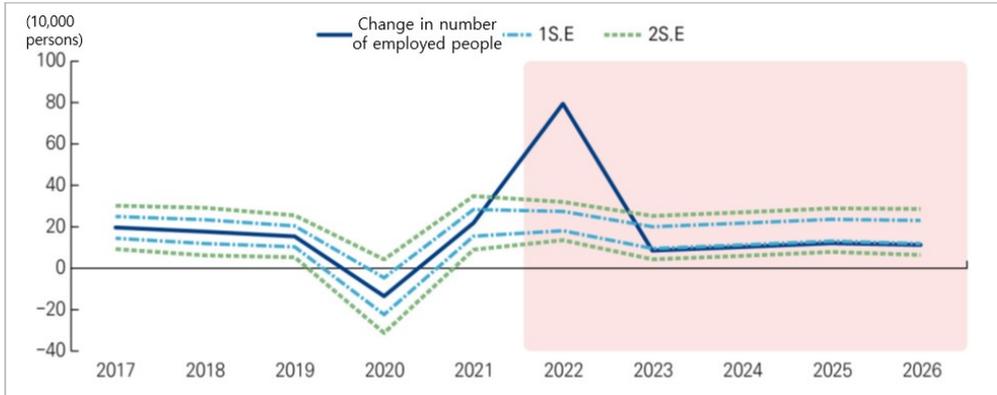
Source: The National Assembly Budget Office

[Figure III-26] below shows the forecasted value for the increase and decrease in the number of employed and the confidence interval of the forecast model. The number of employed in 2022 is forecast to show an increase that far exceeds the forecast model estimate. The forecast for the increase in the number of employed in 2022 is based on the actual measurements for January-August (i.e. average increase in the number of employed in January-August: +91,000), and the model estimate has been significantly raised. However, since this increase is an exceptional shock,²³⁾ the size of the increase in the number of employed after 2023 was slightly adjusted lower, as it was deemed to have a negative impact on the increase or decrease in the number of employed over the next few years. The unemployment rate in 2022 is also expected to be significantly lower than the value derived from the model, based on the actual measurements from January to August (average unemployment rate from January to August: 3.1%). However, it is forecast to rise from 2023, and then converge to 3.7% from 2024. The unemployment rate from 2024 is slightly higher than the natural rate of unemployment, which is forecast to keep the future economic growth rate slightly below the potential growth rate.²⁴⁾

23) For more info. related to this, refer to [BOX 6].

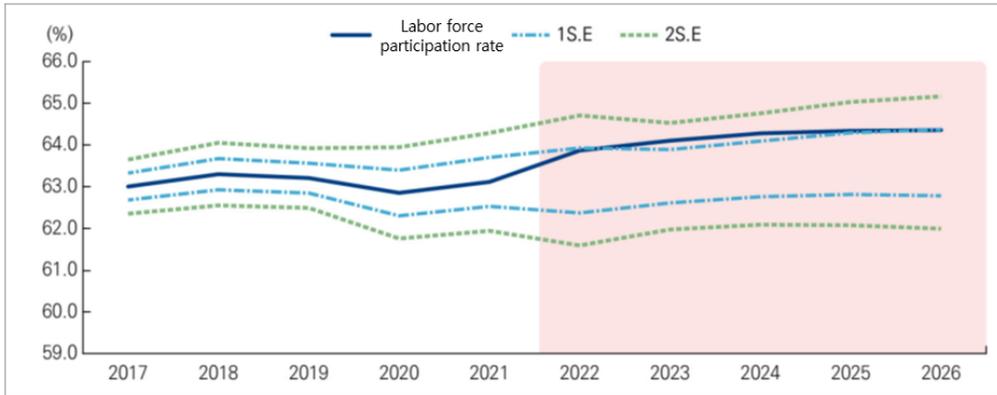
24) For more info. related to the potential growth rate, refer to the 「Economic Outlook for 2023 and the Medium Term II: Growth and Financial Sector」.

[Figure III-26] Estimated Change in the No. of Employed



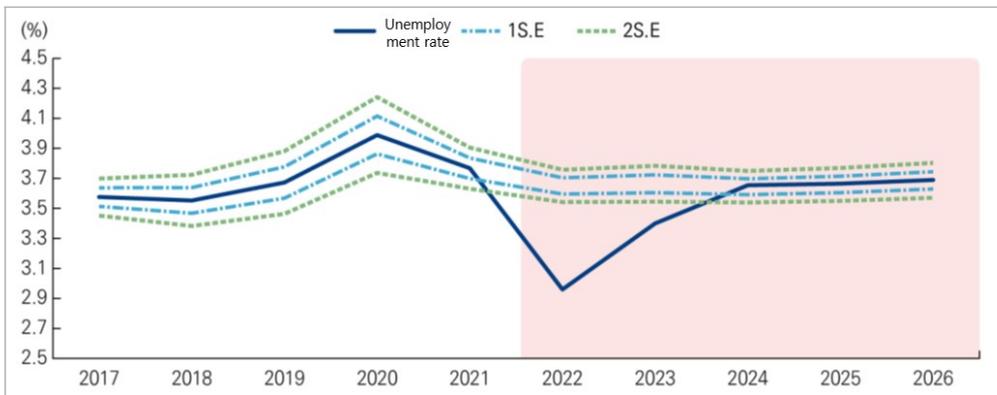
Source: The National Assembly Budget Office

[Figure III-27] Estimated Labor Force Participation Rate



Source: The National Assembly Budget Office

[Figure III-28] Estimated Unemployment Rate



Source: The National Assembly Budget Office

Section 3. Percentage of the Employed by Occupational Status

- Between 2022 and 2026, the share of wage earners is forecast to be 77.4% per year on average.
 - 2.1%p increase compared to the previous 5 years (2017-2021, 75.3%).
 - The share of wage earners is forecast to continue to rise and reach 78.3% in 2026.

(Annual average, %)

Yr. 2022	2023	2024	2025	2026	2017~ 2021	2022~ 2026
76.5	76.9	77.4	77.8	78.3	75.3	77.4

- Between 2022 and 2026, the percentage of self-employed proprietors is forecast to be 19.3% per year on average.
 - 1.5%p decrease compared to the previous 5 years (2017-2021, 20.8%).
 - From 2022, the share of self-employed proprietors in the cumulative employed has fallen to less than 20%.

(Annual average, %)

Yr. 2022	2023	2024	2025	2026	2017~ 2021	2022~ 2026
19.9	19.6	19.3	19.0	18.7	20.8	19.3

- Between 2022 and 2026, the share of unpaid family workers is forecast to be 3.3% per year on average.
 - 0.6%p decrease compared to the previous 5 years (2017-2021, 3.9%).

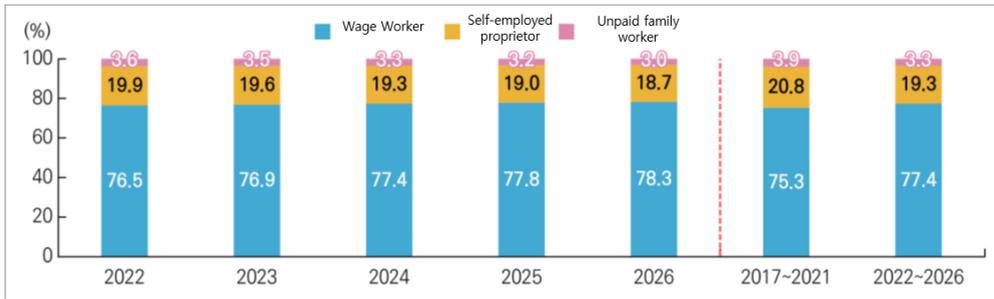
(Annual average, %)

Yr. 2022	2023	2024	2025	2026	2017~ 2021	2022~ 2026
3.6	3.5	3.3	3.2	3.0	3.9	3.3

Between 2022 and 2026, the share of wage earners is forecast to rise to 77.4%, up by about 2.1%p from the average of the past five years of 75.3%. The share of wage earners continued to rise at an annual average rate of about 0.8%p after 31.5% in 1963 when employment statistics began to be compiled, rising to 70% in 2009 and decreasing at an annual average rate of 0.5%p after 2010, but the upward trend has been steady. This upward trend is forecast to continue over the next five years, and by 2026, the share of wage earners among the cumulative employed is forecast to be 78.3%. In addition, while the share of full-time workers among wage earners has steadily increased, the share of temporary and daily workers is forecast to decline.

Contrary to the increase in the share of wage earners, the share of self-employed and unpaid family workers is forecast to continue its downward trend. The share of self-employed proprietors, which was 20.2% in 2021, has fallen below the 20% range from 2022, and the share of unpaid family workers will continue to decline, recording 3.0% in 2026.

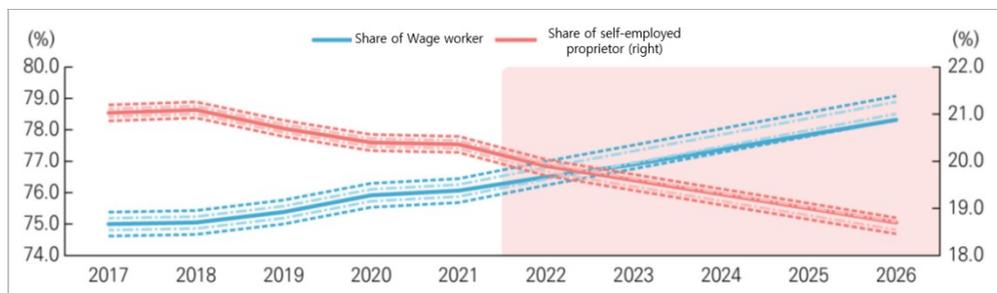
[Figure III-29] Outlook for Percentage of the Employed by Occupational Status in the Mid Term



Source: The National Assembly Budget Office, Statistics Korea

The percentage of the employed by occupational status during the period from 2022 to 2026 was projected on the premise that the existing trend of increase and decrease would continue. [Figure III-30] below shows the predictions and confidence intervals for the percentage of wage earners and the percentage of self-employed proprietors projected through the model. Reflecting the recent change in pace, the model estimate for the share of wage earners was adjusted lower, and the estimate for the share of self-employed proprietors was adjusted higher slightly. After confirming the projections for the percentage of wage earners and self-employed proprietors, the percentage of unpaid family workers was derived using the residual.²⁵⁾

[Figure III-30] Predicted Share of Wage Earners and Self-Employed Proprietors



Source: The National Assembly Budget Office

25) It was confirmed that this is not significantly different from the estimate derived from the residuals even when projected by the model for the share of unpaid family workers.

Chapter 3. Wage Increase Rate



Section 1. Outlook for 2023

- Wages in 2023 are expected to increase by 4.0% compared to 2022.

(Versus the same period last year %)

	Yr. 2021	2022		2023	
	Yearly	1H	2H ^f	Yearly ^f	Yearly ^f
Wage increase rate	4.6	5.8	4.1	4.9	3.9

- Major change factors

Upside factor	Downside factor
<ul style="list-style-type: none"> • Continued high level of inflation 	<ul style="list-style-type: none"> • Declining economic growth rate
<ul style="list-style-type: none"> • Increased labor productivity 	
<ul style="list-style-type: none"> • Ex post reflection of the inflation rate in 2022 	

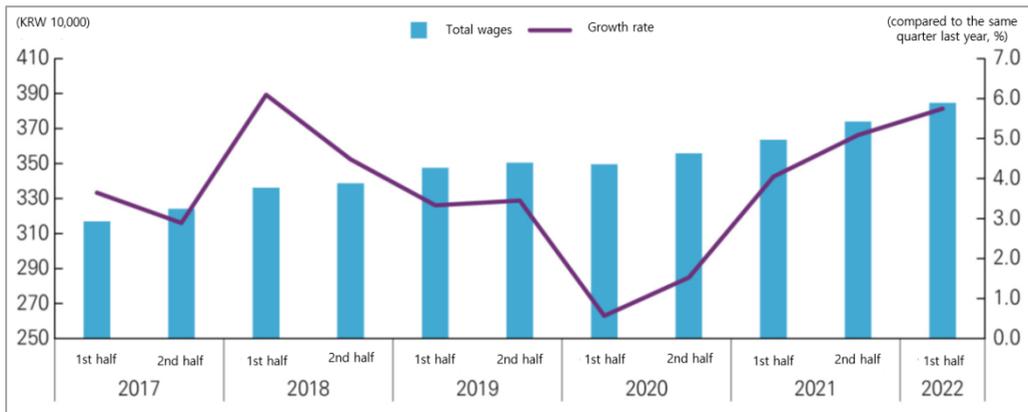
In the first half of 2022, wages increased by KRW 209,000 (5.8%) year-on-year. Due to the impact of COVID-19, wages in 2020 increased by 1.1% year-on-year, recording a slight rise. However, since then, the wages of wage earners have risen by 4.6% in 2021 and by 5.8% in the first half of 2022, showing a gradual upward trend.

[Table III-3] Recent Wage Trend

	Yr. 2020	2021	1H 2022
Wages (KRW 10,000)	352.7	368.9	374.2
(Increase rate, %)	1.1	4.6	5.8

Source: Ministry of Employment and Labor

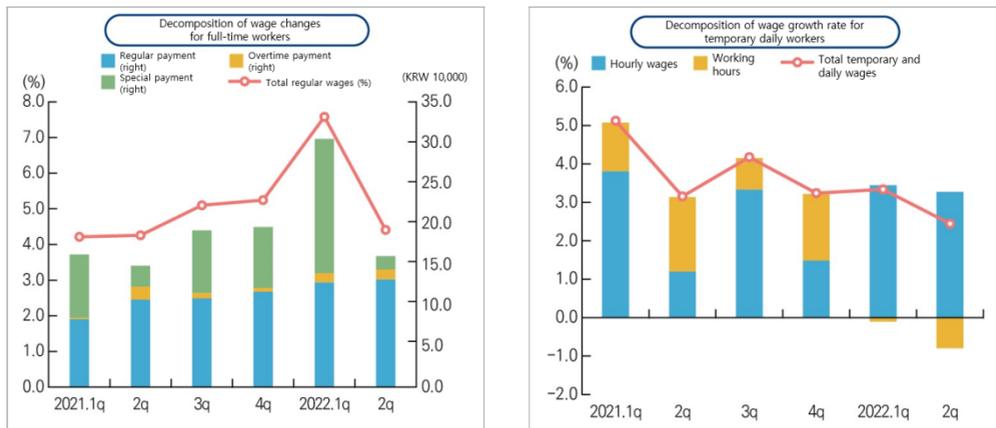
[Figure III-31] Changes in Wages



Source: Ministry of Employment and Labor

The rate of wage increase in the first half of the year is mainly attributable to the increase in the wages of regular workers. In the first half of 2022, wages for full-time workers rose 6.1% year-on-year, while wages for temporary daily workers rose 2.9%. Wages for regular workers rose 7.6% in the first quarter owing to a rise in special wages, but the rate of increase slowed slightly to 4.4% in the second quarter. The wages of temporary and daily workers rose 3.3% in the first quarter and 2.4% in the second quarter. Hourly wages for temporary and daily workers have shown a growth rate of 3%, and working hours a decrease, which has a negative impact on total wages.

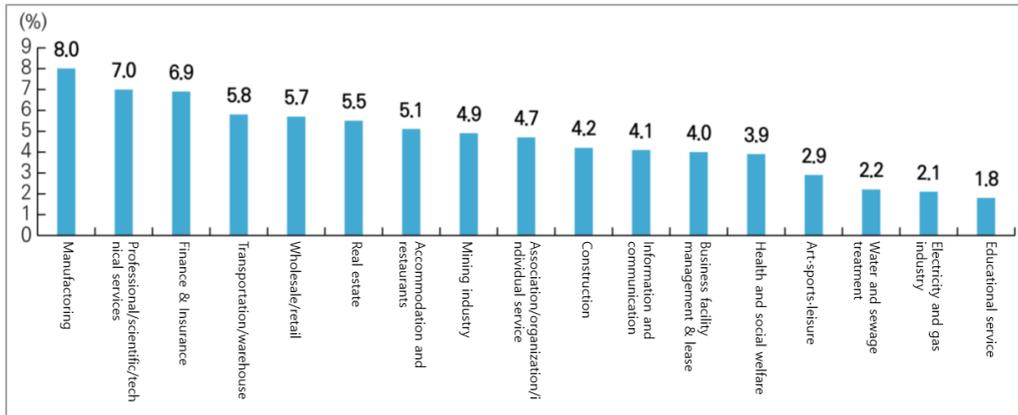
[Figure III-32] Decomposition of Wages for Full-Time and Temporary Workers



Source: Ministry of Employment and Labor

By industry, wages rose the most in the manufacturing industry, and among the service industries, specialized science and technology industries and finance and insurance industries also recorded a rate of wage increase of around 7%. In contrast, as for the educational service industry, wages increased by 1.8%, showing the lowest rate of increase among all industries.

[Figure III-33] Changes in Wages by Industry (First Half of 2022)



Source: Ministry of Employment and Labor

In the second half of the year, the rate of wage increase is forecast to increase by 4.1%, while in 2022, the rate of wage increase is forecast to increase by 4.9% year-on-year. The projected rate of wage increase for the second half is about 1.7% lower than the first half. In the second half of the year, special wages are not likely to be paid at the same high level as in the first half of the year due to the economic slowdown. Even in the manufacturing sector, which showed the highest rate of wage increase in the first half of the year, export growth is likely to slow down in the second half of the year, and the ability to raise wages for workers is forecast to decrease. In 2023, wages are expected to rise 3.9% year-on-year. The main upside and downside factors that will determine the 2023 outlook can be broken down into several categories. In 2023, GDP is projected to grow at a low 2.1%, which is forecast to serve as a downside factor to wage increase. In contrast, the slowdown in the growth of the number of employed will increase labor productivity per employed person, which will act as a factor in raising wages. In addition, the consumer price inflation rate, which recorded 5.2% in 2022, is forecast to remain at a relatively high level of 3.3% in 2023, which will have a positive (+) effect on a wage increase. Lastly, high inflation in 2022 could affect wage levels in 2023 with a delay. Recently, the Bank of Korea has published a study arguing that the inflation rate could be reflected in wages with a lag period of four quarters.²⁶⁾ Thus, there is a possibility that the high price level in 2022 will be reflected in wage levels in 2023 with a delayed impact.

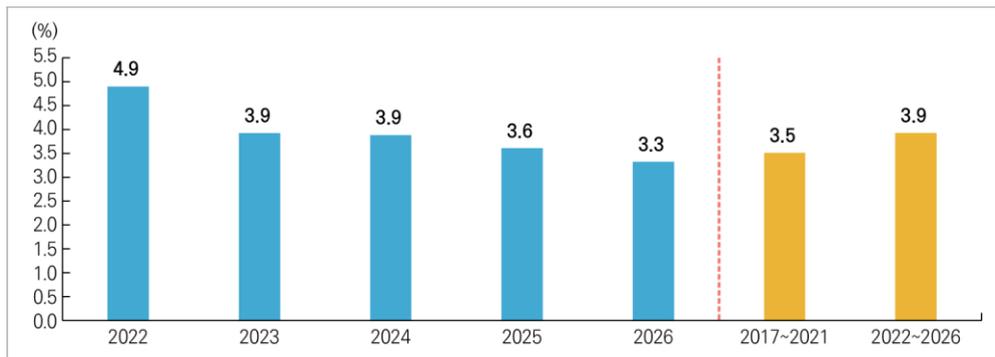
Section 2. Mid-Term Outlook²⁷⁾

- Between 2022 and 2026, the wage increase rate is expected to be 3.9% per year on average.
 - Between 2022 and 2026, the rate of wage increase is expected to be 3.9% per year on average.
 - However, this difference is due to the low rate of wage increase in 2020.

Yr. 2022	2023	2024	2025	2026	2017~2021	2022~2026
4.9	3.9	3.9	3.6	3.3	3.5	3.9

Between 2022 and 2026, rate of wage increase is projected to be 3.9% per year on average. This is an increase rate of about 0.4%p higher than the previous five years (2017-2021). However, the rate of wage increase for the past five years is largely attributable to the low rate of wage increase (1.1%) in 2020 due to COVID-19, and the average rate of wage increase excluding 2020 is 4.1%, which is higher than the increase rate over the next five years.

[Figure III-34] Outlook for Mid-Term Rate of Wage Increase



Source: The National Assembly Budget Office, Ministry of Employment and Labor

The factors that determine the rate of wage increase in the mid term can be examined as follows. GDP growth rate is the most important factor in wage increase, and if the economy grows, it can be expected that the actual share going to workers will also increase.

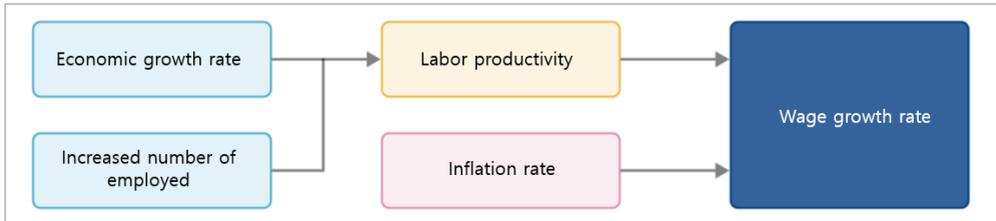
26) Jungseong Kim and others (2022)

27) It is seen to be useful in forecasting, etc. earned income tax, national pension, employment insurance, and rate of increase in unit cost of public assistance (livelihood benefit, medical benefit, etc.)

In contrast, the increase in the number of employed is forecast to have a negative impact on labor productivity (= GDP/number of employed), serving as a headwind factor against a wage increase. Lastly, the inflation rate, independent of production or production performance, will act as a factor that raises the rate of wage increase.

[Figure III-35] below shows the correlation between the rate of wage increase and its major determinants. The rate of wage increase for the period 2022-2026 is projected based on this correlation.

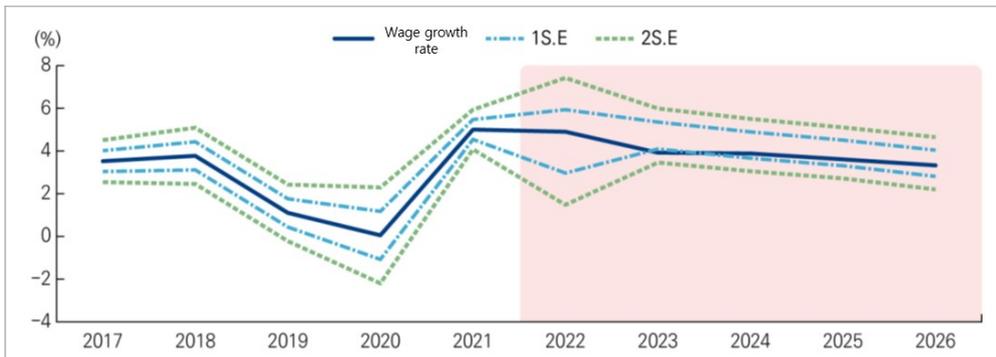
[Figure III-35] Correlation between Wage Growth Rate and Major Determinants



Source: The National Assembly Budget Office

[Figure III-36] below shows the forecasted value and confidence interval of the forecast model for the rate of wage increase. The rate of wage increase for 2022 was adjusted higher slightly to reflect the actual measurement in the first half of the year, and the rate of wage increase from 2023 was adjusted lower to reflect the impact of the 2022 adjustment.

[Figure III-36] Estimates of wage growth rates



Source: The National Assembly Budget Office

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