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국회에산정책처
NATIONAL ASSEMBLY BUDGET OFFICE

Pending Economic Issue

International Comparison of Labor Productivity in Major Industries in Korea and Implications

“The content of the Pending Economic Issue was prepared by reflecting the individual opinions of the author and may differ from the official opinion of the National Assembly Budget Office.”



Pending Economic Issue

International Comparison of Labor Productivity in Major Industries in Korea and Implications

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International Comparison of Labor Productivity in Major Industries

Labor productivity of all industries in Korea remains at a lower level than in major OECD countries

- Korea's labor productivity per employee in all industries in 2021 was 82,000 dollars (PPP applied), ranking 22nd among 38 OECD member countries
- Among the major industries, the level of labor productivity, especially in the service industry, was lower than in the major OECD countries
- It presents policy implications for improving labor productivity in the service industry, which remains at a low level

Korea's manufacturing labor productivity is at the top level compared to major OECD countries, and the service industry is at the bottom level

- As of 2021, Korea's labor productivity per manufacturing employee¹⁾ was 138,300 dollars (PPP applied), ranking sixth among 36 comparable OECD countries, which is the top level²⁾
- As of 2021, Korea's labor productivity per service industry employee was 65,700 dollars (PPP applied), ranking 27th among 36 comparable OECD countries, which is the bottom level
- The low level of labor productivity in the service industry in Korea is causing the level of labor productivity for the entire industry to be undervalued
 - Due to the high proportion of the service industry to GDP (62.4% as of 2021), its low labor productivity level is bringing down the level of labor productivity for the entire industry

1) Labor productivity per employee is calculated by dividing the real GDP by the total number of employees, and measures the absolute level of labor productivity. Labor productivity per employee is used mainly to compare labor productivity between industries and countries
 2) Ranking 13th when market exchange rate is applied

■ **The level of labor productivity in the service industry in Korea is lower than the OECD average and major countries, and the gap is also large**

- Based on the OECD average (=100), Korea's labor productivity in the service industry (65,700 dollars) is 75.8 as of 2021
- Low productivity level compared to major OECD countries such as the United States (148.2), Japan (83.1), Germany (87.8), the United Kingdom (86.2), Italy (94.3), and Canada (90.6)

| Table 1 | Status and Ranking of Labor Productivity per Employee by Industry in Major OECD Countries (As Of 2021)

(Unit: PPP applied 10,000 dollars)

		Ireland	U.S.	Germany	UK	Japan	Korea
Manufacturing	Labor productivity per employee	71.65	15.97	10.97	12.44	10.9	13.83
	Ranking (out of 36 countries)	1	4	13	10	14	6
Service industry	Labor productivity per employee	13.94	12.84	7.61	7.46	7.19	6.57
	Ranking (out of 36 countries)	2	3	16	18	21	27
All industries	Labor productivity per employee	21.25	13.3	9.15	8.86	7.65	8.2
	Ranking (out of 38 countries)	1	3	16	20	24	22

Source: Prepared by NABO based on data from the OECD and Korea Productivity Center

Labor productivity in distribution, transportation, food, and lodging, information and communication, and other services is particularly weak

■ **The level of labor productivity per employee is relatively high in finance and insurance (96.9) and professional science management support (81.9) compared to the OECD average**

■ **On the other hand, distribution, transportation, food, and lodging (65.2) and information and communication (64.5) fall well short of the OECD average**

- Information and communication are computer programming; publishing, broadcasting, post, and communication; information service, etc., and can be regarded as software and content production industries
- It means that the labor productivity of Korea's software and content production-related service industry is insufficient compared to the OECD average

Table 2 | Level of Labor Productivity by Service Industry in Major Countries Compared to OECD Average (2021)

(Unit: OECD average=100)

	Distribution, transportation, food and lodging	Information and communication	Finance and insurance	Professional science management support	Other services	Entire service industry
OECD average	100.0	100.0	100.0	100.0	100.0	100.0
Korea	65.2	64.5	96.9	81.9	72.7	75.8
U.S.	136.9	148.7	112.8	193.9	148.1	148.2
Japan	90.4	70.1	82.8	63.2	90.6	83.1
Germany	100.3	77.2	77.8	79.8	123.5	87.8
UK	75.9	87.5	117.5	67.2	119.3	86.2
Italy	113.3	68.7	99.2	74.5	73.9	94.3
Canada	94.8	56.5	70.7	66.8	85.7	90.6

Source: Prepared by NABO based on data from the OECD and Korea Productivity Center

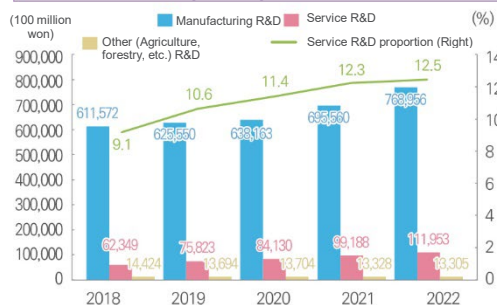
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Policy Challenges for Improving Productivity in the Service Sector

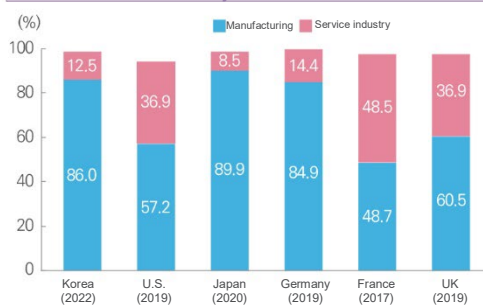
First, in order to improve productivity in the service sector, it is necessary to increase R&D investment in the service sector

- According to the Ministry of Science and ICT, R&D expenses in the manufacturing sector were 76.8956 trillion won as of 2022, which is 86.0% of the total R&D investment of companies in the private sector, but the service sector was 11.1953 trillion won, which is only 12.5% of the total
 - Proportion of manufacturing industry in private sector R&D: 2018 88.8%, 2020 86.7%, 2022 86.0%
 - Proportion of service industry in private sector R&D: 2018 9.1%, 2020 11.4%, 2022 12.5%
- The proportion of the service sector in Korea's private sector R&D is lower than that of the U.S., France, and the UK, and higher than that of Japan
 - U.S. (36.9% in 2019), France (48.2% in 2017), UK (60.5% in 2019), Japan (8.5% in 2020), etc.

| Figure 1 | R&D Investment Size in the Private Sector by Industry in Korea



| Figure 2 | Share of R&D Investment by Industry in Major Countries



Source: Ministry of Science and ICT and Korea Institute of Science and Technology Evaluation and Planning, "2022 Results of Research and Development Activity Survey (Draft)"

Second, it is necessary to expand investment in education, such as vocational education and vocational training, for employed manpower flowing into the low-productivity service sector

- **Recently, employment and start-ups have increased in the service sector with relatively low labor productivity**
 - Since the 2000s, adjustments have been made in the manufacturing sector to improve productivity, such as factory automation
 - The labor force in the manufacturing sector has been transferring to service industries such as food and lodging, and the number of small business startups and employment in the sector has been continuously increasing
- **The labor force in Korea's service industry is concentrated in industries such as distribution, food, and lodging, and employment continues to increase in these industries despite the relatively low labor productivity**
 - The lodging and restaurant industry was one of the service industries that saw the largest increase in the number of employees in 2022-2023
 - While the total number of employees increased by 327,000 in 2023 compared to the previous year, the number of employees in the manufacturing industry decreased by 43,000, but the lodging and restaurant business among the service industries increased by 114,000
- **Song Sang-yun, An Jae-bin, and Kim Ha-eun (2022)³⁾ cited an increase in the proportion of employed workers in the service industry among re-employed workers as the cause of the slowdown in labor productivity in the service industry**
 - It is estimated that the productivity of workers who were unemployed or re-employed in the service industry by starting a business is 40.0% lower than those who have continued to work in the service industry
- **It is necessary to lay the foundation for improving worker productivity by increasing the learning opportunities of workers with the expansion of the government budget related to education, such as vocational training for the service sector**

3) Song Sang-yun, An Jae-bin, and Kim Ha-eun (2022), "Analyzing the Characteristics of Changes in Korea's Employment Structure: Focusing on Inter-Industry Movement," "BOK Issue Note," No. 2022-1.

3 Implications

The economic importance of the service industry is increasing, but the labor productivity level of the service industry is relatively inadequate

- The service industry's proportion of the national economy is significant at 63.5% in 2022 based on value added and 70.7% in 2022 based on the number of employees
- In 2021, Korea's labor productivity per service industry employee was 65,700 dollars (PPP applied), ranking 27th among 36 comparable OECD countries, which is the bottom level
- During the 2020-2023 period, the manufacturing industry's labor productivity index increased by 2.54% on average, and the service industry's labor productivity index increased by only 1.25% on average

In order to improve the productivity of the service industry and strengthen its competitiveness, it is necessary to seek ways to boost R&D and education investment

- **It is necessary to consider ways to expand private R&D in the service industry through financial support and tax benefits**
 - While Korea has a large technology gap with advanced countries such as the U.S. in the field of information and communication services such as software and artificial intelligence, R&D investment in the service industry, which is the basis of technology development, is inadequate
- **It is necessary to expand investment in education, such as vocational education and vocational training, for employed manpower flowing into the low-productivity service sector**
 - A considerable amount of R&D investment is needed for productivity improvement and innovation in the service sector, but as of 2022, only 12.5% of the total R&D investment of Korean companies in the private sector is in the service sector
 - The labor force in Korea's service industry is concentrated in industries such as distribution, food, and lodging, and employment continues to increase in these industries despite the relatively low labor productivity
 - While the total number of employees increased by 327,000 in 2023 compared to the previous year, the number of employees in the manufacturing industry decreased by 43,000, but the lodging and restaurant business among the service industries increased by 114,000

[BOX 2] Current Status of Change in the Number of Employees by Industry

As of 2023, the industries with the largest increase in the number of employed were in the following order: Health and social welfare service, lodging and restaurant, professional/science/technology service, and information and communication

- The number of employees in the health and social welfare service industry increased by 143,000 year-on-year to 2.858 million
- The number of employees in the lodging and restaurant industry increased by 114,000 year-on-year to 2.3 million
- The number of employees in the professional/science/technology service industry increased by 70,000 year-on-year to 1.357 million
- Information and communication industry increased by 57,000 year-on-year to 1.037 million

Current Status of Change in the Number of Employees by Year, by Industry

(Unit: 1,000 persons, YOY %)

	2021		2022		2023		
	No. of newly employed	Change	No. of newly employed	Change	No. of newly employed	Change	Rate of change
Health and social welfare service industry	2,534	198	2,714	180	2,858	143	5.3
Lodging and restaurant industry	2,098	-47	2,182	84	2,296	114	5.2
Professional/science/technology service industry	1,219	55	1,288	69	1,357	70	5.4
Information and communication industry	901	54	981	80	1,037	57	5.8
Arts and sports-related services	467	-29	482	15	512	30	6.2
Public administration, defense and social security administration	1,143	31	1,213	71	1,238	25	2.0
Association and organization, repair and other service industry	1,135	-55	1,119	-16	1,130	11	0.9
Finance and insurance industry	800	22	774	-26	782	9	1.1
Business facilities management, business support, lease, etc.	1,397	50	1,423	27	1,431	8	0.6
Other	354	0	340	-14	338	-2	-0.6
Education service industry	1,840	42	1,902	62	1,896	-6	-0.3
Construction	2,090	74	2,123	33	2,114	-9	-0.4
Transportation and warehouse industry	1,586	103	1,655	69	1,644	-11	-0.7
Agriculture, forestry and fishery industry	1,458	13	1,526	67	1,513	-13	-0.8
Real estate	531	14	552	21	534	-18	-3.3
Wholesale and retail industry	3,353	-150	3,313	-41	3,276	-37	-1.1
Manufacturing	4,368	-8	4,503	135	4,461	-43	-0.9
Total	27,273	369	28,089	816	28,416	327	1.2

Note: Change compared to the previous year
Source: Statistics Korea

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