

BOK Issue Note

Labor Market and Job Mobility of AI Professionals

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- ① **We use LinkedIn-based online profile data to comprehensively analyze the scale, wages, and mobility of AI workers in Korea.** Based on data covering about 1.1 million workers with work experience in Korea since 2010 and more than 10 million job histories, we identify AI workers who possess at least one AI skill—information that is difficult to capture using more traditional labor market data—and provide a multilayered view of the AI workforce in Korea.
- ② **The number of AI workers in Korea has grown rapidly over the past decade, estimated at about 57,000 in 2024.** They are predominantly by highly educated workers, with master's and doctoral degree holders accounting for 58%, and 64% of them majored in engineering. We find evidence that the AI workforce has expanded across industries and occupations, consistent with AI technology becoming increasingly general-purpose.
- ③ **The wage premium of possessing AI skills has trended upward and was about 6% in 2024.** This suggests an excess demand for AI expertise in the Korean labor market. However, compared to major developed countries such as the United States (about 25%), the wage premium remains at a relatively low level, indicating relative weakness in attracting talent globally.
- ④ **AI workers are characterized by high turnover rates and persistent overseas outflows, resulting in high labor mobility.** AI workers are estimated to have a 27-percentage-point higher probability of working abroad, and as of 2024, about 16% (11,000) of the AI workforce is employed overseas.
- ⑤ **Most companies (69.0% of large companies, 68.7% of midsize companies) plan to hire more AI workers, but they face difficulties in securing AI workers due to a lack of experienced workers and high salary expectations.** Therefore, the wage premium of AI workers is expected to rise further in the near future as firms compete to attract AI talent.
- ⑥ **AI talent policies need to create compensation systems and research-industrial ecosystems that meet global standards to secure international competitiveness and systematically construct career development paths so that excellent talents can flow and settle in Korea.**

- Disclaimer: The views expressed herein are those of the authors, and do not necessarily reflect the official views of the Bank of Korea. When reporting or citing this paper, the authors' names should be always explicitly stated.
- Any errors that remain are the author's responsibility.



한국은행

I. Introduction

1. Competition in artificial intelligence (AI) development is fierce worldwide. With its high versatility and potential to transform the entire economy, as well as its nature as a digital technology, AI entails the possibility of winner-takes-all outcomes. Accordingly, many firms have made substantial investments in AI development to gain a competitive advantage, and governments around the world have begun to recognize AI as a key national technology.

2. The advancement and adoption of AI require not only infrastructure such as data centers and power plants, but also specialized personnel capable of effectively utilizing the technology. Therefore, understanding the basic characteristics, distribution, and dynamics of AI-related talent in the labor market is essential for formulating strategies and policies to remain competitive internationally. While major economies such as the United States and European countries have already recognized the importance of AI talent and conducted extensive research on related labor markets (Albanesi et al., 2024; McElheran et al., 2024), systematic analysis in South Korea remains limited due to a lack of relevant data.

3. This paper uses LinkedIn-based online profile data to conduct an in-depth analysis of the labor market conditions and mobility of AI professionals in Korea. Specifically, we examine qualitative characteristics of AI talent, including educational attainment and fields of study, as well as their distribution across industries and occupations. We estimate wage premiums associated with AI skill possession to assess labor market supply and demand conditions. In addition, we analyze patterns of job turnover and overseas outflows of AI talent, along with firms' demand for AI talent, to derive policy implications for enhancing the competitiveness of the domestic AI industry and securing skilled personnel.

II. Data – Revelio Job Profile

4. This study utilizes the “Revelio Job Profile” database provided by Revelio Labs, a global firm specializing in workforce data analytics. Built on publicly available profiles from LinkedIn, the world's largest professional networking platform, the database contains extensive labor market information on individual workers, including educational background, career history, skills, job roles, and employer information. Recent economic studies (Curtis et al., 2024; Dorn et al., 2024; Weiss et al., 2024; Tambe, 2025) have shown that these data effectively capture key labor market trends and exhibit a high degree of representativeness.

5. For the analysis, we extracted a sample of Korean workers who had work experience in Korea between 2010 and 2024 from this database, yielding information on approximately 1.1 million workers and more than 10 million job histories. In particular, the core strength of this data lies in its provision of detailed information on the specific skills held by workers. To identify whether workers possess AI-related competencies—features that cannot be readily captured using conventional industrial or occupational classification codes alone—we select a set of core AI-related keywords (Artificial Intelligence, Big Data, Cloud Computing, Machine Vision, Deep Learning, Image Processing, Machine Learning, Natural Language Processing, Neuroscience, Pattern Recognition, Signal Processing, and Robotics; 12 categories). Workers possessing at least one of these skills are defined as AI professionals

6. Table 1 presents summary statistics of the Revelio Job Profile data. Compared to other workers, AI professionals are more likely to hold graduate-level degrees and to have majored in STEM (Science, Technology, Engineering, and Mathematics) fields. They also tend to have longer career experience on average, with substantially higher shares of master's and doctoral degree holders. In addition, their estimated salary levels exceed those of non-AI workers, reflecting a labor market characterized by highly skilled and highly educated individuals. Although online platform data may not perfectly represent the entire labor market, given the high utilization of such platforms among workers in advanced technology fields such as AI, these data provide a highly informative basis for analyzing the domestic AI labor market.

Table 1. Summary Statistics of the Revelio Job Profile Data¹⁾

	AI Workers		Other Workers	
	Mean	SD	Mean	SD
# of AI Skills	1.45	0.92	0.00	0.00
Experience Year	3.16	1.67	2.97	1.69
Annual Salary (US \$)	59346.45	31608.67	55687.90	34435.50
PhD	0.20	0.40	0.07	0.25
Master	0.26	0.44	0.14	0.35
Bachelor	0.32	0.47	0.40	0.49
Associate/High School	0.01	0.11	0.02	0.15
No Degree Info.	0.18	0.39	0.35	0.48
STEM Major	0.59	0.49	0.28	0.45
Non-STEM Major	0.15	0.36	0.30	0.46
No Major Info.	0.25	0.43	0.41	0.49
Number of Workers	71,522		1,046,436	

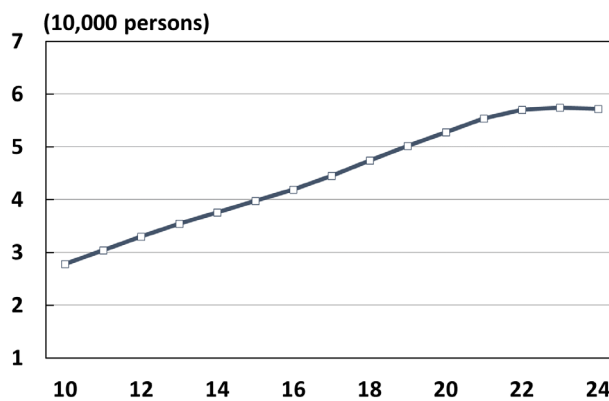
Note: 1) snapshot as of August 2025; data cover 2010-2024.

III. Status of AI Workers

Quantitative Trends in AI Workers

7. The number of AI workers in Korea shows a steady increase over the past decade. Based on an analysis of LinkedIn-based online profile data, the size of the workforce possessing AI skills continued to rise after 2010, reaching an estimated level of approximately 57,000 workers as of 2024¹. This trend indicates that, as AI emerges as a core source of industrial competitiveness, the training of relevant talent and their entry into the labor market are actively taking place.

Figure 1. Trends in the Number of AI-Related Workers in Korea



Source: Revelio, authors' estimation

¹ The figure of approximately 70,000 workers in Table 1 represents the total number of workers who had work experience in Korea at any point during the sample period; therefore, it is larger than the year-specific estimates.

8. The growth rate of AI-related workers in Korea is steeper than that of other major advanced economies. Compared with 2010, the number of AI-related workers in Korea more than doubles, representing the fastest growth among the countries considered. Although the absolute number of AI-related workers in Korea remains smaller than in the United States (approximately 780,000), the United Kingdom (about 110,000), France and Canada (around 70,000 each), Korea’s rapid growth suggests that the human capital base for future AI industry development is gradually being strengthened.

Figure 2. International Comparison of AI-Related Worker Trends¹⁾

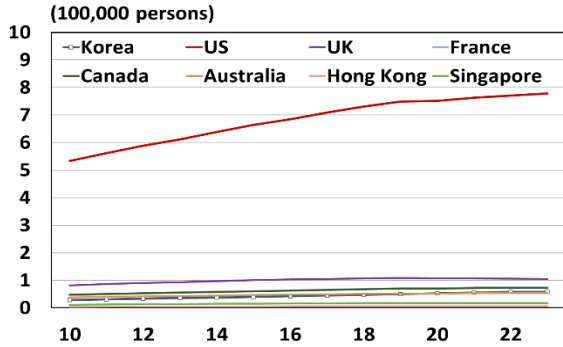
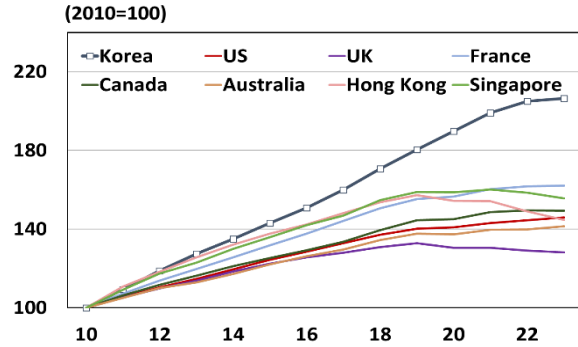


Figure 3. International Comparison of AI-Related Worker Trends (2010=100)¹⁾



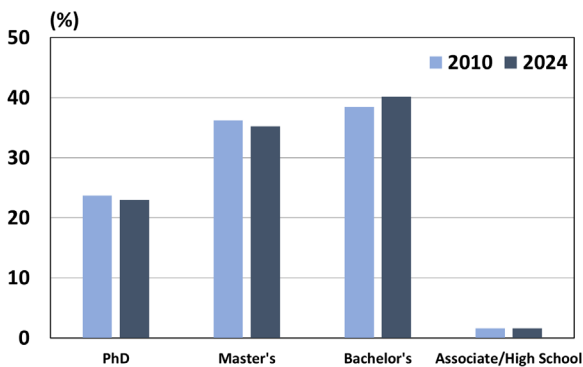
Note: 1) Figures for foreign countries are estimated using snapshot data through 2023.

Source: Revelio, authors’ calculations

Characteristics and the Distribution of AI Workers

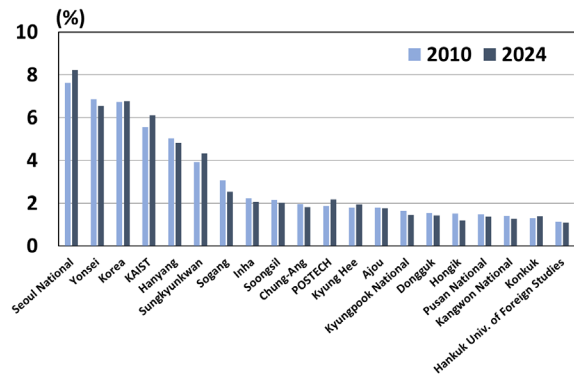
9. AI workers in Korea exhibit high levels of educational attainment. As of 2024, 58% of AI workers hold graduate degrees (35% master’s degrees and 23% doctoral degrees), reflecting the highly specialized knowledge and research capabilities required in AI fields². In terms of university background, AI professionals tend to be concentrated among graduates of a small number of top universities, including Seoul National University, Yonsei University, Korea University, and KAIST.

Figure 4. Educational Attainment of AI Workers



Source: Revelio, authors’ calculations

Figure 5. Universities Attended by AI Workers



10. By field of study, engineering majors account for the largest share of AI workers at 64% in 2024, followed by business administration (12%), information technology, social sciences, and mathematics (5%). In addition, AI workers most commonly possess skills in cloud computing (41%), machine learning (40%), deep learning (17%), and signal processing (11%). Notably, the share of workers possessing machine learning and deep learning skills increased by 14 and 8 percentage points, respectively, compared with 2010.

² The share of workers holding a bachelor’s degree increased slightly from 38% in 2010 to 40% in 2024, while the share of high school graduates and associates (college graduates) remained at around 2%.

Figure 6. Fields of Study of AI Workers

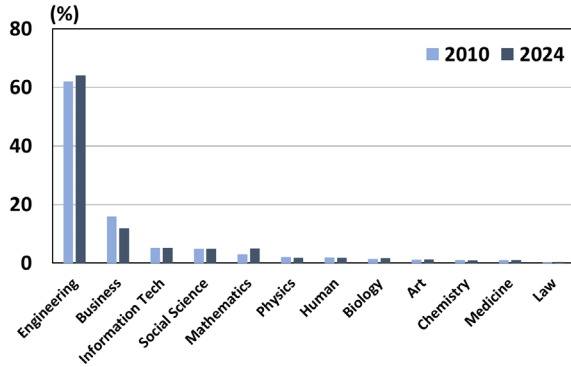
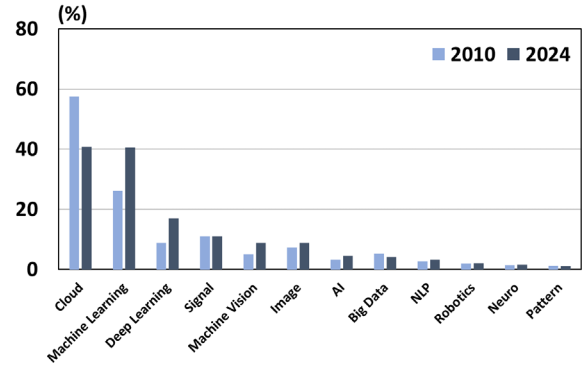


Figure 7. Distribution of Detailed AI Skills



Source: Revelio, authors' calculations

11. By industry, the distribution of AI workers shows a partial shift from manufacturing toward information and communications services. Between 2010 and 2024, the share of manufacturing declined from 27% to 22%, while the share of information services expanded from 22% to around 30%. In terms of employers, not only manufacturing-based conglomerates such as Samsung Electronics and LG Electronics, but also IT platform firms such as Naver, Amazon, and Coupang, as well as telecommunications companies, increasingly lead the hiring of AI workers.

Figure 8. Industry Distribution of AI Workers

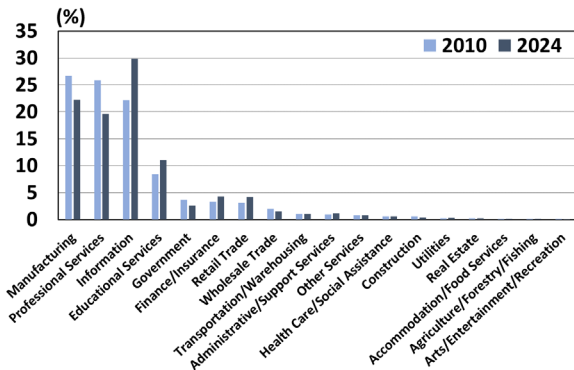


Figure 9. Occupational Distribution of AI Workers

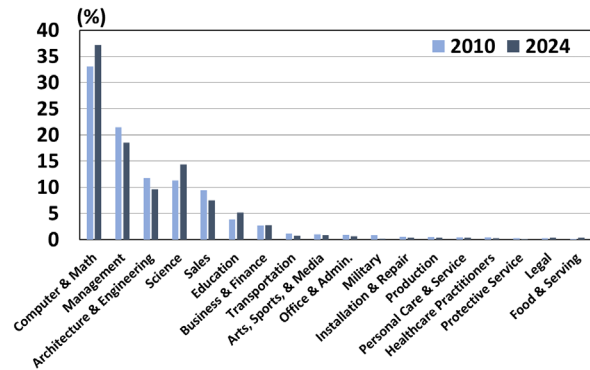


Figure 10. Major Employers of AI Workers (2010)

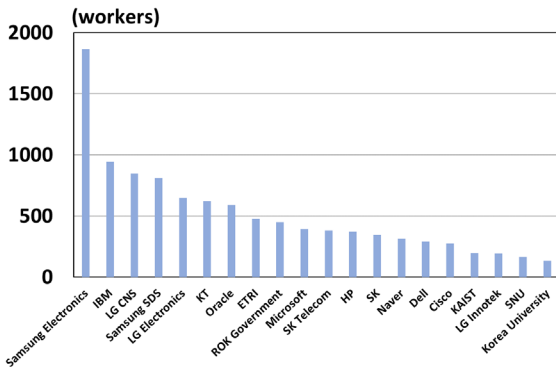
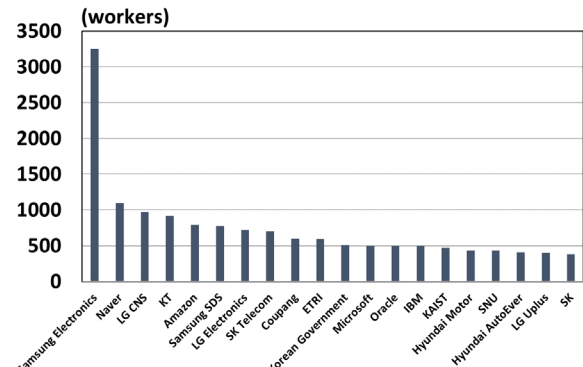


Figure 11. Major Employers of AI Workers (2024)

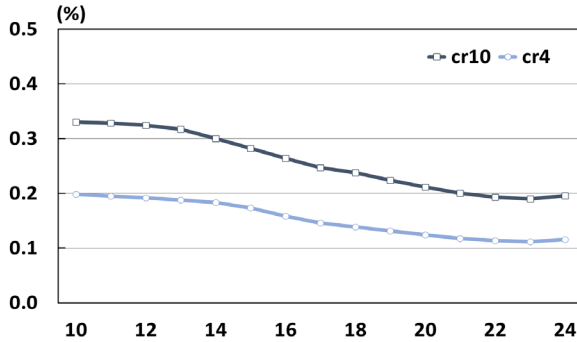


Source: Revelio, authors' calculations

12. An examination of occupational distribution and firm concentration reveals that specialization and diffusion among AI workers occur simultaneously. On the occupational side, the share of computer- and mathematics-related technical occupations increased from 33% in 2010 to 37% in 2024, indicating a deepening of specialization in AI development. At the same time, concentration measures such as the Herfindahl–Hirschman Index (HHI), calculated using the distribution of AI workers, and concentration ratios (CR) for top firms show a declining trend. This implies that AI workers are no longer concentrated in a small number of leading firms but are spreading across a broader range of companies. In other words, AI technology is increasingly taking on the characteristics of a general-purpose

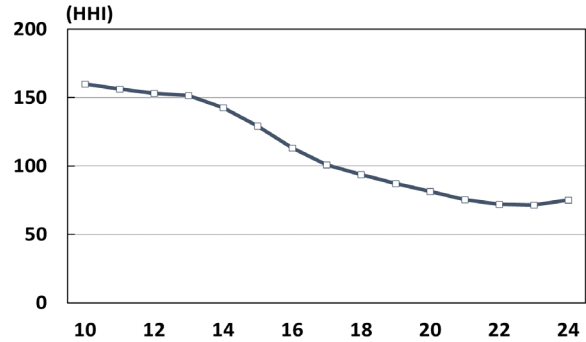
technology that is widely utilized beyond a small group of developers.

Figure 12. Firm Concentration of AI Workers



Source: Revelio, authors' calculations

Figure 13. HHI Index for AI Workers



IV. Wage Premiums for AI Skills

13. Workers possessing AI skills earn statistically significant wage premiums compared with other workers. Estimates based on data from 2010 to 2024 show that, even after controlling for firm and year fixed effects, workers with AI skills receive wages approximately 4.3% higher than those without such skills³.

Table 2. Estimates of Wage Premiums for AI Skills¹⁾²⁾³⁾⁴⁾

	(1) Log(salary)	(2) Log(salary)	(3) Log(salary)	(4) Log(salary)
Having AI Skills	0.043*** (0.001)	0.006*** (0.001)		
# of AI Skills			-0.003*** (0.001)	0.004*** (0.001)
Observations	6,577,252	6,577,252	534,736	534,736
Firm FE	O	O	O	O
Year FE	O	O	O	O
Rank FE	X	O	X	O

Notes: 1) August 2025 snapshot; data cover 2010–2024.

2) Robust standard errors in parentheses.

3) Wages are interpolated using the start and end values of each career.

4) *** p<0.01, ** p<0.05, * p<0.1.

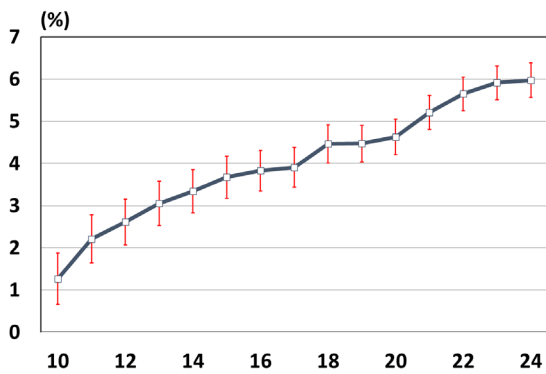
Source: Revelio, authors' estimates

14. Wage premiums associated with AI skills show a sustained upward trend. As illustrated in Figure 14, the estimated premium rose from 1.3% in 2010 to about 6% in 2024. Figure 15 further shows that wage premiums increased over time across individual AI skill categories. As of 2024, skills such as pattern recognition (17.9%), neuroscience (15.8%), signal processing (11.8%), and cloud computing (11.3%) command particularly high wage premiums. In contrast, some skills—including deep learning and machine learning—exhibit significantly lower premiums than the average AI skill premium⁴.

³ The number of AI skills possessed does not appear to have a substantial effect on wages.

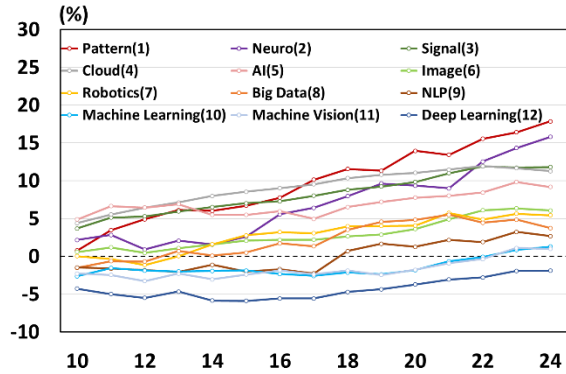
⁴ As will be discussed in Section V, AI-related workers possessing skills that receive relatively low wage premiums in Korea exhibit a higher probability of working abroad.

Figure 14. Trends in Wage Premiums for AI Skills



Notes: 1) Estimates are based on specification (1) in Table 2.
 2) Red bars indicate 95% confidence intervals.
 Source: Revelio, authors' estimates

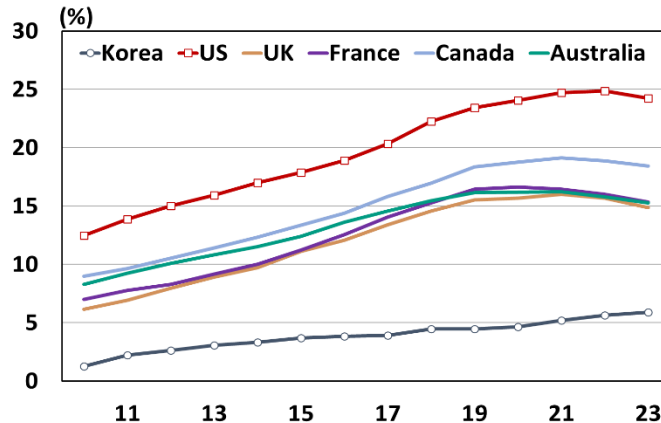
Figure 15. Wage Premiums by Type of AI Skill



Notes: 1) Estimates are obtained by interacting year dummies with indicators for possession of each specific AI skill. (Firm and year fixed effects are controlled for.)
 2) Numbers in parentheses indicate rankings as of 2024.
 Source: Revelio, authors' estimates

15. In international comparison, Korea's wage premium for AI skills remains relatively low. While the United States offers wage premiums approaching 25% to AI workers, and countries such as Canada (18%) and the United Kingdom, France, and Australia (around 15%) also provide substantial premiums, Korea's premium stands at approximately 6% in 2024—less than half that of major comparator countries⁵. This relatively low level of compensation may act as an important factor contributing to the overseas outflow of core AI talent.

Figure 16. International Comparison of Wage Premiums for AI Skills



Note: 1) Country-specific estimates are based on specification (1) in Table 2.
 Source: Revelio, authors' estimates

⁵ Such relatively low wage premiums may stem from characteristics of the Korean labor market, including seniority-based wage systems. In addition, domestic investment and demand for AI may be lower than in other countries.

V. Labor Mobility of AI Workers

Job-to-Job Mobility

16. AI workers exhibit higher job turnover rates than other workers. The turnover rate of workers with AI skills consistently exceeds that of those without such skills, with a gap of about 6 percentage points as of 2024. This pattern likely reflects excess demand for AI talent, which strengthens incentives for workers to move in search of better employment conditions. By firm size, job-to-job mobility is most active among large firms, indicating intense competition among firms to attract AI talent.

Figure 17. Turnover Rates of AI Workers

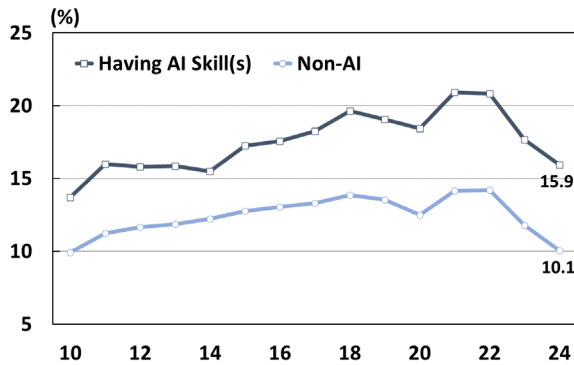
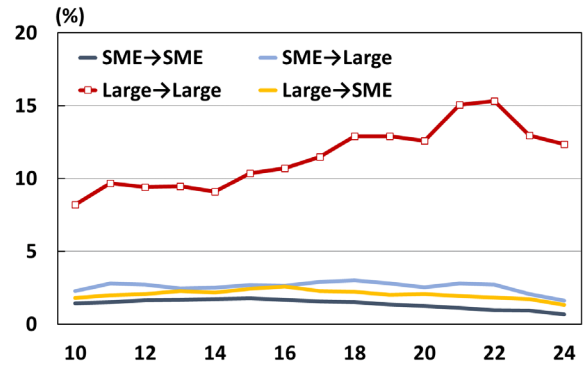


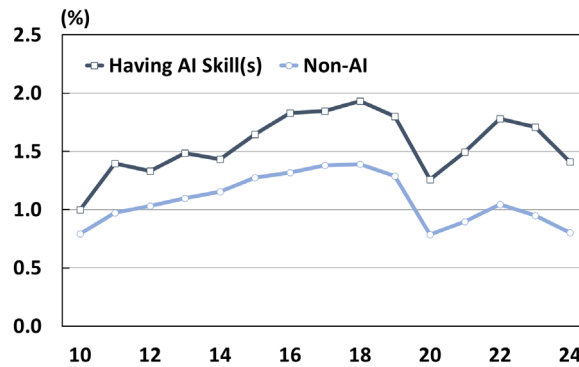
Figure 18. Turnover Rates by Firm Size



Source: Revelio, authors' calculations

17. AI workers in Korea also show persistently higher rates of job transitions to overseas firms compared with other workers. As of 2024, 1.4% of AI workers who changed jobs moved to overseas firms, a rate 0.6 percentage points higher than that of other workers.

Figure 19. Job Transitions of AI Workers to Overseas Firms

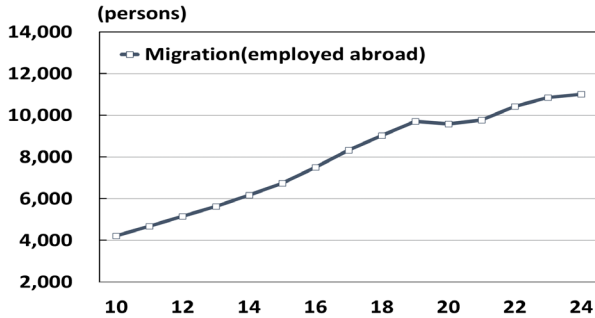


Source: Revelio, authors' calculations

Overseas Employment and Net Outflows

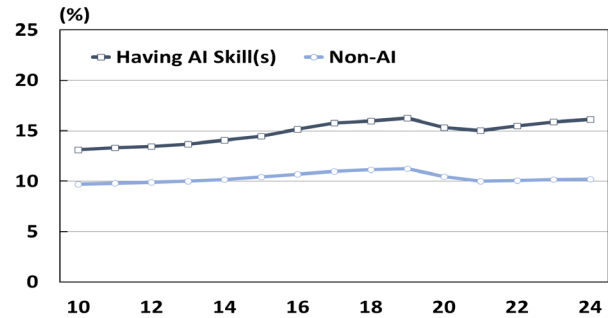
18. A growing concern is the continued overseas outflow of AI workers in Korea. Analysis of cross-country labor mobility shows that approximately 16% of Korean AI workers are employed abroad as of 2024, about 6 percentage points higher than for other workers. In absolute terms, the number of Korean AI workers employed overseas continued to increase, reaching approximately 11,000 in 2024.

Figure 20. Trends in Overseas Employment of AI Workers



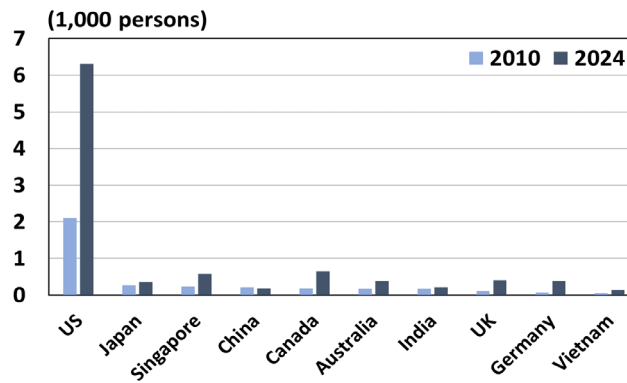
Source: Revelio, authors' calculations

Figure 21. Share of Workers Employed Overseas



19. The primary destination for Korean AI workers employed abroad is the United States. While about 2,100 Korean AI professionals work in the United States in 2010, this number rose to approximately 6,300 by 2024. The United States offers a very high wage premium for AI skills (around 25%) and has a large AI workforce of roughly 780,000 workers. These conditions create abundant job opportunities and favorable compensation, thereby attracting Korean AI talent to the U.S.-led global AI industry.

Figure 22. Countries of Overseas Employment for AI Workers

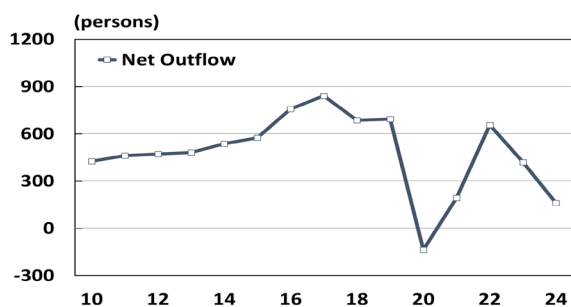


Source: Revelio, authors' calculations

20. Korea is a net outflow country for AI workers. Except for the period affected by the COVID-19 pandemic, the net outflow of AI workers persists over time⁶. Moreover, net outflows are particularly pronounced among highly educated workers, indicating that core AI talent with advanced degrees is more likely to leave the domestic labor market.

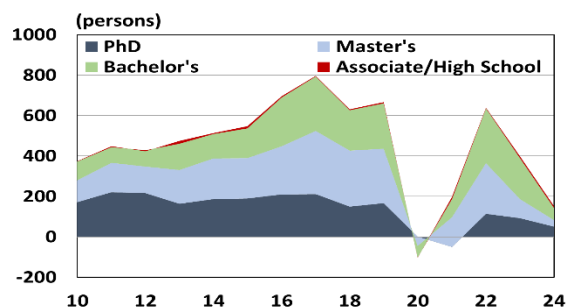
⁶ The Artificial Intelligence Index Report 2025 (Stanford University), which also analyzes LinkedIn data, reports a recent net outflow of AI-related workers from Korea. While the report calculates net flows based on the location of LinkedIn users, this study identifies Korean workers using (sur)name and estimates net outflows specifically for Korean AI-related workers.

Figure 23. Net Outflow of AI Workers



Source: Revelio, authors' calculations

Figure 24. Net Outflow of AI Workers by Educational Attainment¹⁾



Note: 1) Observations with missing information on educational attainment are excluded.

Determinants of Overseas Employment

21. Regression analysis of factors influencing overseas employment decisions shows that possessing AI skills increases the probability of working abroad by approximately 27 percentage points⁷. This effect is particularly pronounced among workers holding degrees from overseas universities and among female workers. In contrast, working in Seoul or in positions that allow remote work reduces the probability of overseas employment when AI skills are present, by about 20.1 and 12.5 percentage points, respectively.

Table 3. Effects of AI Skill Possession on the Probability of Working Abroad¹⁾²⁾³⁾

	(1) Working abroad (0 or 1)	(2) Working abroad (0 or 1)
AI skill holder	0.210*** (0.001)	0.268*** (0.038)
Female	0.027** (0.013)	0.018 (0.014)
Works in Seoul	-0.410*** (0.009)	-0.391*** (0.009)
Remote Work	-0.228*** (0.009)	-0.217*** (0.009)
Overseas University Graduate	0.542*** (0.007)	0.537*** (0.007)
AI skill holder x Female		0.120*** (0.055)
AI skill holder x Works in Seoul		-0.201*** (0.031)
AI skill holder x Remote Work		-0.125*** (0.036)
AI skill holder x Overseas University Graduate		0.078*** (0.030)
Observations	7,558,805	7,558,805
Firm FE	0	0
Year FE	0	0
Rank FE	0	0
Occupation FE	0	0

Notes: 1) August 2025 snapshot; data cover 2010–2024. Estimates are obtained using a linear probability model.

2) Robust standard errors are reported in parentheses.

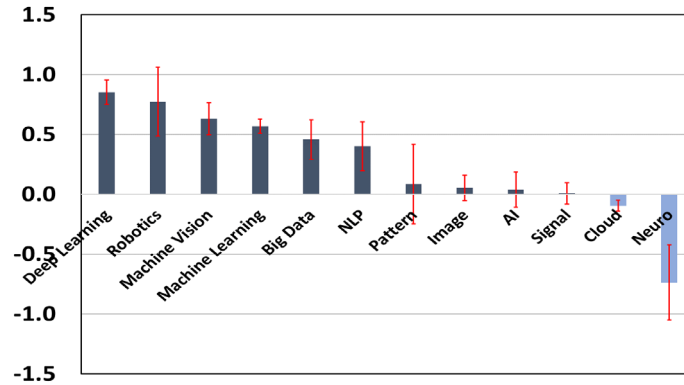
3) *** p < 0.01, ** p < 0.05, * p < 0.1.

Source: Revelio, authors' estimates

⁷ Given the potential endogeneity between individuals' overseas employment decisions and the registration of AI skills, the estimated probability of working abroad should be interpreted as an upper bound.

22. Workers possessing AI skills that command relatively low domestic wage premiums are more likely to work abroad. Skills such as neuroscience and cloud computing, which offer high domestic wage premiums, are associated with lower probabilities of overseas employment, whereas workers with deep learning skills—characterized by the lowest domestic premiums—show the highest likelihood of working abroad. These findings suggest that insufficient compensation for highly skilled AI workers in the domestic labor market may accelerate talent outflows.

Figure 25. Probability of Working Abroad by Type of AI Skill¹⁾²⁾³⁾⁴⁾



Notes: 1) August 2025 snapshot; data cover 2010–2024.
 2) Estimates are obtained by including dummy variables for each AI skill in a linear probability model.
 3) Firm, year, and rank fixed effects are controlled for.
 4) Red bars indicate 95% confidence intervals.
 Source: Revelio, authors' estimates

VI. Corporate Demand for AI Workers

23. Based on a firm survey conducted by the authors, demand for AI workers among Korean firms remains strong. More than half of firms across all size categories—large; 69.0%, medium-sized; 68.7%, and SMEs; 56.2%—plan to expand hiring of AI workers, reflecting the perception that AI adoption is directly linked to corporate survival regardless of firm size.

24. At the same time, firms face significant difficulties in securing AI workers. Large firms identify shortages of skilled talent (27.4%) as the most serious obstacle, followed by high salary expectations (25.3%). Domestic competition among firms, difficulties in verifying AI competencies, and competition from overseas firms also hinder recruitment.

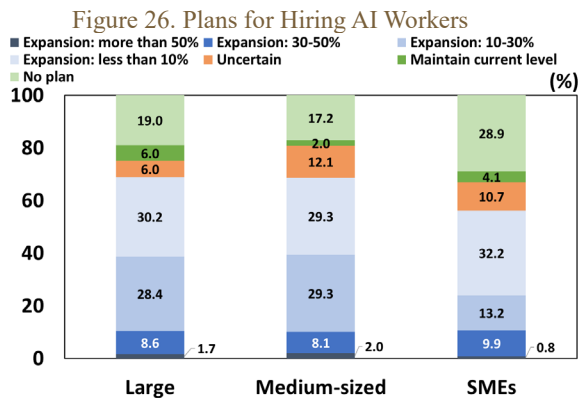
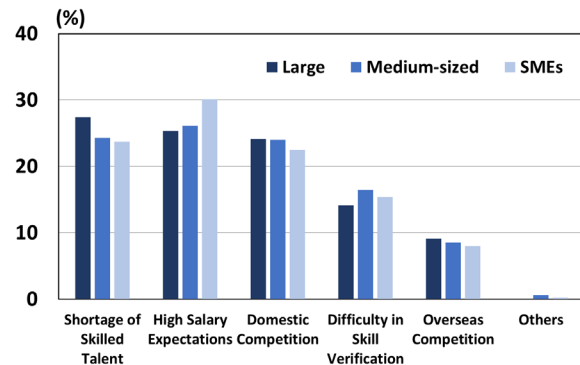
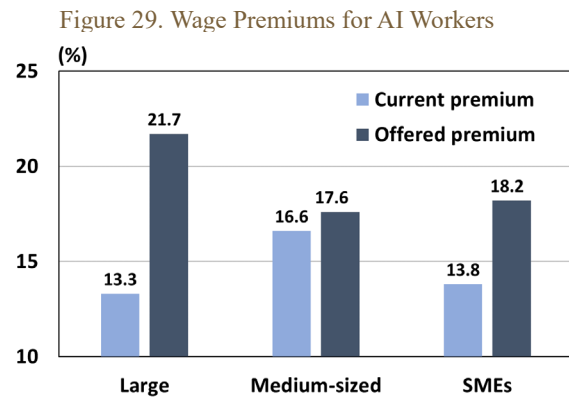
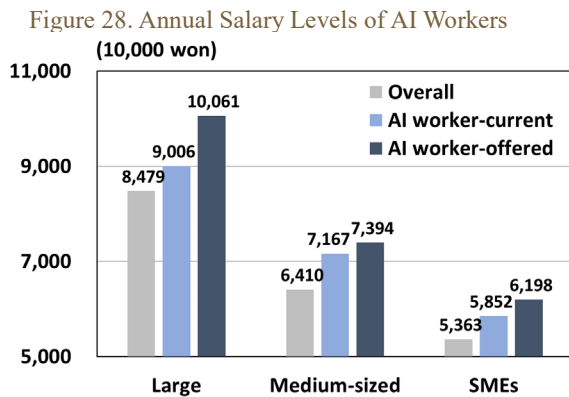


Figure 27. Challenges in Hiring AI Workers



Source: Authors' firm survey (conducted in October 2025 among 400 firms across all industries in Korea.)

25. Firms indicate a strong willingness to offer higher wage levels for AI workers than at present. High salary expectations are consistently cited as one of the top recruitment challenges, and large firms, in particular, showed the greatest willingness to offer higher wage premiums to attract AI talent. SMEs also reported plans to raise wage premiums from the current level of 13.8% to about 18.2%. If the supply of AI workers does not increase sufficiently, expanding corporate demand may further intensify excess demand and accelerate upward pressure on wage premiums.



Source: Authors' firm survey (conducted in October 2025 among 400 firms across all industries in Korea.)

VII. Conclusion

26. This study analyzed the status and labor mobility of Korean AI workers using online profile data. The results showed that the size of the AI workforce increased rapidly over the past decade and expanded across a wide range of industries and occupations, including manufacturing, professional services, information services, and education. Despite this quantitative growth, imbalances between the supply and demand for AI talent have deepened. This paper examined these supply–demand imbalances from two perspectives.

27. First, AI workers exhibited high job turnover and persistent overseas outflows. Compared with other workers, those with AI skills were more inclined to move in search of better compensation, particularly to overseas destinations such as the United States. This pattern suggested that compensation offered by the domestic labor market fell short of international standards. Indeed, Korea's wage premium for AI skills remained lower than that of major advanced economies, limiting the ability to attract and retain top talent.

28. Second, mismatches in labor supply and demand at the firm level intensified. Although firms expanded hiring to adopt AI technologies, they faced difficulties due to shortages of skilled talent and high wage expectations among job seekers. This reflected not only an insufficient overall supply of workers but also a lack of highly skilled AI professionals with the specific capabilities firms require. Such mismatches are likely to worsen as AI adoption and hiring continue to expand across industries.

29. Accordingly, future AI talent policies by governments and firms need to go beyond simple quantitative expansion and place greater emphasis on qualitative upgrading and the prevention of talent outflows. In particular, establishing systematic career development pathways, along with compensation systems and research environments aligned with global standards, is essential to ensure that high-quality AI talent continues to flow into and settle in the domestic labor market.

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