2025 GLOBAL TALENT FLOW: TRENDS AND PROSPECTS 2025

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Introduction and Key Findings

Talent serves as a crucial asset for national rejuvenation and global competitiveness, playing a pivotal part in China's modernization efforts. Notwithstanding the growing complexity of the international landscape, the cross-border movement of talent has remained resilient. Conversely, the developmental impetus created by talent influxes has compelled nations to implement specific policy initiatives to draw the requisite human resources.

Initiated in 2022, the current report—initially presented at the 5th Hongqiao International Economic Forum—pursues the advancement of an open framework for talent mobility as its primary aim. It creates a succinct and impartial assessment approach to comprehensively examine the present condition and emerging trends of global talent mobility, contrasting the talent competitiveness of 38 key nations, as the countries covered by this evaluation account for 65% of the world's population and 89% of the world's total GDP, we claim that the evaluation gives a realistic overview of global talent competitiveness. The report analyzes the establishment of a global dialogue mechanism for talent cooperation, aims to foster cross-national exchanges and disseminate best practices to develop inclusive and effective governance solutions for global talent flows, thereby providing an international public good. Ultimately, it aims to establish a new global framework for talent governance founded on consultation, collaborative contribution, and mutual benefits, therefore improving equity, coordination, and inclusivity in talent mobility.

Key conclusions of the report:

1. The United States continues to be the leader in talent competition; nevertheless, the locus of talent is transitioning from Europe and North America to Asia

The report's composite index indicates that the United States ranks top in talent competitiveness, followed by the Republic of Korea, Sweden, Japan, China, Germany, Singapore, Belgium, and Switzerland. Of the top 10 economies, six are from Europe or North America, while four are from Asia, with three Asian nations positioned within the top five, indicating a progressive eastward shift in the global talent center. China

and the United States possess distinct advantages in terms of talent scale. The Republic of Korea, Canada, and Sweden rank as the top three nations in talent quality. Simultaneously, because the talent quality indicators emphasize performances on a per capita basis, rapidly developing economies with bigger labor forces, such as India, China, Indonesia, and Brazil, exhibit worse performances. The United States and China thrive in terms of talent environment, whereas the United States, Israel, and Sweden are at the forefront of talent input. Singapore occupies the top position in talent performance, closely followed by the Republic of Korea. Conversely, Chile, South Africa, and Indonesia have relative weakness in this category.

2. China exhibits significant strengths in talent scale and talent environment while demonstrating relatively potential for enhancement in other areas

Out of the five indicators, China scored the highest in talent scale, followed by talent environment, talent input, talent performance, and talent quality. China occupies the fifth position overall, behind the United States, the Republic of Korea, Sweden, and Japan, still falling short of its economic significance. However, it ranks first in the talent scale indicator and second in talent environment, highlighting accomplishments in both work-platform development and living conditions. China ranks 25th in talent performance, signifying potential in optimizing talent contributions and institutional improvement. China is positioned 28th in talent input—trailing the top decile but relatively closer to some other developing countries, demonstrating potential for growth in total expenditures. In talent quality, China ranks the 30th, which is indicative of the interplay between a substantial labor force denominator and an inadequate per capita supply of high-level talent.

3. Regional talent flows are increasing in magnitude and diversity in trajectory, influenced by geopolitical factors and economic progress

By April 2025, the global displaced population had attained 122.1 million, including a notable contingent of cross border migrating scientific and technology talents. Simultaneously, worldwide merchandise commerce expanded from $63 billion (US dollars) in 1950 to $33 trillion (US dollars) in 2024, hence increasing the demand for skilled professionals. According to United Nations data, the number of international migrants rose from 173 million in 2000 to 304 million in 2024, primarily migrating from developing to developed economies. The United States is the foremost destination,

receiving more than 52.4 million migrants, while India and China are the largest source countries, with 18.53 million and 11.70 million migrants, respectively. The Mexico-to-United States corridor is the largest migration route, while the India-to-United States and China-to-United States routes are the primary gateways for economic migrants. In terms of immigration structure, labor migrants are the mainstream, concentrated in high-income countries and emerging market service sectors. High-skilled technical immigrants have become the focal point of policy competition among countries. International students, sometimes termed "proto-talents," have tripled in number over the last two decades and are eagerly sought after by host countries.

4. The growth of the global digital economy is elevating the need for digital expertise

Accelerated innovation and profound integration of digital technology are transforming economic rivalry and occupational frameworks globally. The World Economic Forum indicates that the majority of the 20 fastest growing jobs projected for 2025–30 is digital technology related. The global digital economy is anticipated to expand from $38.1 trillion (US dollars) in 2021 to $53.9 trillion (US dollars) by 2025, representing almost 45 percent of global GDP. While automation may replace around 30 percent of existing jobs, it is anticipated to generate 130 million new roles, highlighting significant employment transformations within a new productivity framework.

5. Policy Recommendations for Systematic Global Talent Mobility

Firstly, measures should be taken to deepen the understanding of the value of talent mobility. The shared pursuit of a better life by countries has driven the cross-border and cross-sector movement of talent, continuously promoting the flow of immigrant talent, international students, and other groups, which helps enhance understanding, foster mutual trust, and support high-quality development. Secondly, promoting talent mobility through high-level openness is important. The free and comprehensive development of talent cannot be achieved without a more open global environment, and openness helps break down barriers to mobility and enhance mutual trust. Thirdly, expanding multi-level platforms for talent exchange and dialogue is also critical. A multi-level institutionalized international talent exchange mechanism should be built, and platforms such as the Global Talent Summit should be used to promote

policy coordination, resource sharing, and the achievement of global consensus, improving the fairness, coordination, and inclusiveness of talent mobility. Fourthly, countries and institutions should advance the diversification and digitalization of talent mobility governance platforms. Global talent mobility shows trends of regional diversification and cross-sector convergence, and governance platforms should emphasize fairness, diverse participation, unified rules, and digital means. Fifthly, a focus should be placed on building a data-driven global skills recognition and talent mobility governance system. A global skills observation mechanism should be established, mutual recognition of micro-certifications and academic qualifications should be promoted, and a digital certification system should be developed to provide institutional guarantees for the cross-regional and cross-sector mobility of global talents.

Chapter 1: The Talent Competitiveness Index for Major Countries

This part attempts to create a Talent Competitiveness Evaluation Index for Major Countries that is simple, predictable, and internationally transferable in order to evaluate the level of talent competitiveness in major countries and further analyze the strengths and weaknesses of China's talent competitiveness.

Building a Talent Competitiveness Evaluation Index for Major Countries

What Talent Competitiveness Means

Talent competitiveness evaluates a country's ability in attracting, cultivating, sustaining, and utilizing talent in the context of global socio-economic development and the subsequent talent flows that follow this phenomenon. 38 countries are covered by this evaluation, including China, the seven major industrialized countries (G7), and 19 countries from economic cooperation groups mainly corresponding to G20 members, excluding the EU and African Union due to overlapping membership with G7 and G20 countries. Aside from India, Indonesia and South Africa, the vast majority of countries in the sample have populations exceeding 10 million and per-capita GDP levels above $10,000. Countries with populations between 5 million and 10 million generally have per-capita GDP above $40,000. As the countries covered by this evaluation account for 65% of the world's population and 89% of the world's total GDP, we claim that the evaluation gives a realistic overview of global talent competitiveness.

Talent Competitiveness Evaluation Index for Major Countries

The Talent Competitiveness Evaluation Index for Major Countries uses data from

World Bank's World Development Indicators (WDI) database, the World Intellectual Property Organization WIPO Intellectual Property Statistics database, the ILO database of the United Nations International Labour Organization, the Fortune Magazine 2024 list of the top 500 companies in the world, and the 2025 QS World University Rankings Top 1000 list. Some data reflecting situations in individual countries are missing from these databases and will be supplemented by data from the statistical agencies of each government.

The Talent Competitiveness Evaluation Index for Major Countries covers five primary indicators of talent (scale, quality, environment, input, and performance) and 14 secondary indicators.

Scale indicators measure the absolute gap in the number of high-level talent resources in different countries, reflecting the absolute number of different types of high-level talent resources and reflecting the scale effect of talent. Talent scale indicators include two secondary indicators, namely, "Number of the working-age people with advanced education" (thousands) and "Number of researchers in R&D".

Quality indicators measure the relative quantity difference of high-level talent resources in different countries. Talent quality features two secondary indicators, namely, "Number of people with advanced education per million working-age people" and "Number of researchers in R&D per million positions".

Environment indicators measure the strengths and weaknesses of talent resources in different countries in terms of living, working, and learning environments, and serve as the main indicator of environmental gaps. Talent environment indicators include four secondary indicators, namely, "PM2.5 mean annual exposure (μg/m³)", "Fortune Global top 500 (proportion)", "QS top 1000 (percentage)" and "CO2 emissions per capita (t/person)".

Input indicators measure the strengths and weaknesses of different countries in terms of talent security and talent potential and are the main indicators of the momentum of talent competitiveness. Talent investment indicators include three secondary indicators, namely, "Share of public education expenditure in GDP (%)", "Share of research and development expenditure in GDP (%)" and "Current health expenditure in GDP (%)". Among them, "Share of public education expenditure in GDP (%)" reflects and measures the strength and level of financial expenditure on education in different countries to improve the overall quality of the nation and cultivate potential human resources, indicating the strategic level and policy support of the country in the

development of human resources. “Share of research and development expenditure in GDP (%)” reflects and measures the strength and level of financial R&D expenditure of different countries in encouraging innovation and creativity, demonstrated in the country’s policy support and strategic emphasis in attracting and keeping talent working in science and technology. “Current health expenditure in GDP (%)” reflects the country's total investment in healthcare with the goal of enhancing the physical health of the population and providing good healthcare services and social security for the talent pool.

Performance indicators measure the strengths and weaknesses of different countries in terms of talent use and talent output and are the main indicators of the effectiveness of talent development. Talent performance indicators include three secondary indicators, namely, “Labour productivity (GDP per employment)”, “Number of active patents per capita in the labour force (patents/10,000 working-age people)”, “Proportion of value added in medium and high-tech manufacturing to total manufacturing value added (%)”. “Labour productivity (GDP per employment)” reflects the contribution talent made to economic growth in different countries, while “Number of active patents per capita in the labour force (patents/10,000 working-age people)” reflects the contribution made by the talent pool in science and technology innovation as well as the strength and quality of talent innovation in different countries. “Proportion of value added in medium and high-tech manufacturing to total manufacturing value added (%)” reflects the use of talent resources and the extent of their role. The three secondary indicators directly measure the efficiency in applying talent in different countries and indirectly measure a country’s policy and environmental effects on talent.

The Talent Competitiveness Evaluation Index for Major Countries uses the Analytic Hierarchy Process (AHP) to determine the weighting of each secondary indicator.

Table 1.1 Design of the talent competitiveness evaluation index for major countries

Primary indicators	Primary indicator weighting	Secondary indicators	Code	Secondary indicator weighting	Data source
Talent Scale	0.160	Number of the working-age people with advanced education (per 1,000 people)	GM1	0.071	ILO/WDI
		Number of researchers in R&D (people)	GM2	0.089	WDI
Talent Quality	0.224	Number of people with advanced education per million working-age people (people/million working-age people)	ZL1	0.110	ILO/WDI
		Number of researchers in R&D per million positions (people/million positions)	ZL2	0.114	WDI
Talent Environment	0.207	PM2.5 mean annual exposure (μg/m³)	HJ1	0.025	WDI
		Fortune Global top 500 (proportion)	HJ2	0.075	Fortune
		QS top 1000 (percentage)	HJ3	0.072	QS
		CO2 emissions per capita (t/person)	HJ4	0.035	WDI
Talent Input	0.184	Share of public education expenditure in GDP (%)	TR1	0.062	WDI
		Share of research and development expenditure in GDP (%)	TR2	0.060	WDI
		Current health expenditure in GDP (%)	TR3	0.062	WDI
Talent Performance	0.225	Labour productivity (GDP/ Employment)	XN1	0.092	WDI
		Number of active patents per capita in the labour force (patents/10,000 working-age people)	XN2	0.050	WIPO/WDI
		Proportion of value added in medium and high-tech	XN3	0.083	WDI

		manufacturing to total manufacturing value added (%)			

（Continued Table 1.1） Note: “WDI” refers to the World Bank WDI database (2025), “WIPO” refers to the World Intellectual Property Organization database WIPO (2025), “ILO” refers to the United Nations ILO database (2025), “Fortune” refers to the complete list of Fortune Magazine 2024 World 500 companies, and “QS” refers to the 2025 QS World University Rankings Top 1000 list.

Evaluation of Talent Competitiveness for Major Countries

Based on a systematic calculation of relevant data, we positioned and ranked the 38 countries covered in the report according to their talent competitiveness levels in 2025, including comparisons of the five primary indicators, namely, scale, quality, environment, input, and performance.

Taken together, the index reveals that the United States takes the lead in talent competitiveness, followed by the Republic of Korea in second place, Sweden in third place, Japan in fourth place, and China in fifth place. Germany, Singapore, Belgium, and Switzerland take the places from sixth to nineth respectively. Among the top ten, there are six Western countries and four Asian countries. Asian countries also take up three of the top five ranks.

The countries that are ranked from 10th to 19th are Denmark, Israel, France, the UK, Finland, Canada, the Netherlands, Ireland, Austria, and Norway. Those that are ranked between 20th and 29th place are Australia, Spain, New Zealand, Portugal, Czechia, Italy, Greece, Poland, Russia, and Brazil. Finally, Türkiye, Saudi Arabia, Malaysia, Chile, India, Argentina, Mexico, South Africa, and Indonesia are ranked from the 30th to 38th. It is noticeable that for countries that are ranked between third and twentieth place, the difference in their index score is relatively small. Another point that stands out is that the talent competitiveness index for the US, which ranks first, is 3.5 times that of Indonesia in the last place (see figure 1.1).

Compared to the index ranking of 2022, certain countries, mostly European nations, stand out due to the relatively large changes in their respective rankings. Causes of these changes include the US’s implementation of “American First” policies that to some extent restricted academic freedom in the country, resulting in many high-quality

research talents migrating to Europe. Some Northern European and Western European countries such as Sweden, Germany, and Belgium, increased their investment in R&D and facilitated green industry transformation, successfully increasing their competitiveness in attracting local and global talents. Denmark's ranking decreased due to the country's increase in defense expenditures, elimination of carbon taxes, and the controversies surrounding education reforms. The United Kingdom, largely affected by the aftermaths of "Brexit", saw decreases in research cooperations with the European Union, leading to its fall in the talent competitiveness ranking. In Central Europe, both Czechia and Türkiye have significantly improved their research and education sectors by steadily increasing investment in R&D and gradually raising public education spending. In addition, Türkiye has established multiple new higher education institutions, further enhancing its capacity for research and talent development. These efforts have collectively strengthened both countries' appeal to skilled professionals. On the other hand, Russia, due to external conflicts posing as an obstacle to international cooperation, experienced a drain and outflow in talent from the country, leading to a drop in the talent competitiveness ranking.

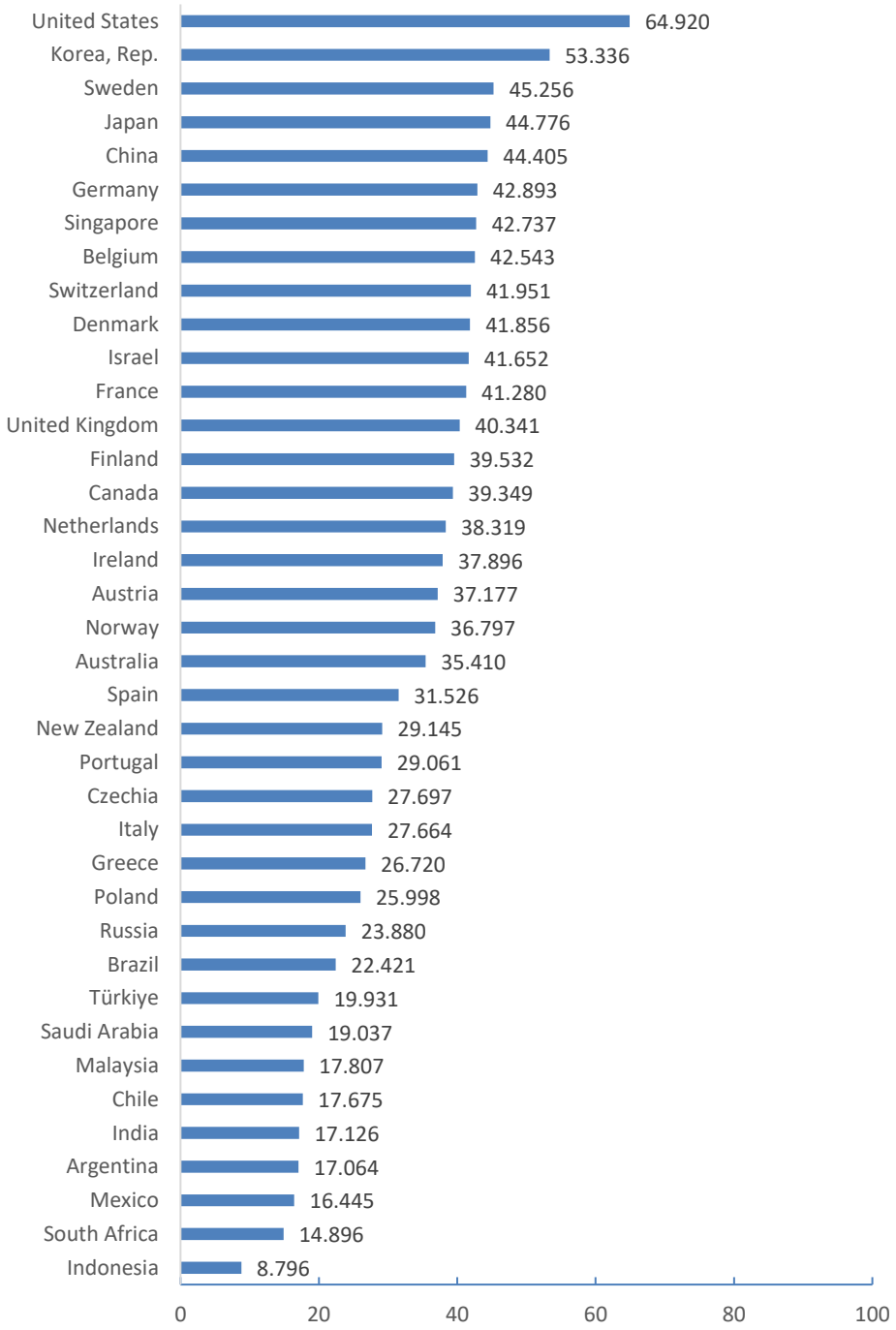

Figure 1.1 Rankings for 38 countries in terms of overall talent competitiveness (on a 100-point scale)

In terms of talent scale, China and the United States have a clear competitive edge. When considering the "Number of the working-age people with advanced education" and "Number of researchers in R&D", China and the United States are far ahead of India, Japan, and the Republic of Korea, which rank third, fourth, and fifth, respectively,

indicating the two country's evident lead in talent scale statistics (see figure 1.2).

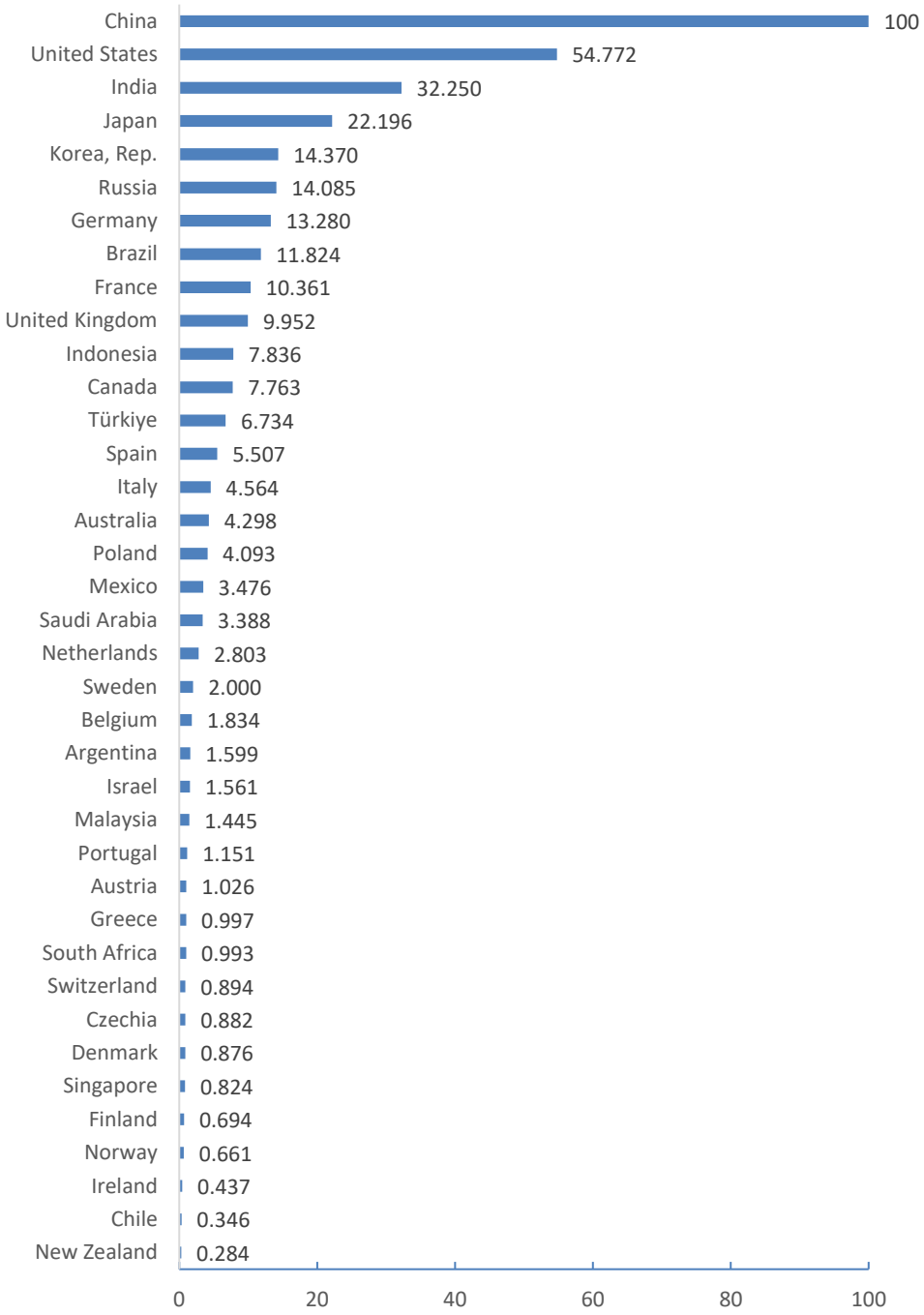

Figure 1.2 Talent scale rankings for 38 countries (on a 100-point scale)

The Republic of Korea, Canada, and Sweden are the top three countries in terms of talent quality. The Republic of Korea ranks first in terms of "Number of people with advanced education per million working-age people" and the "Number of researchers in R&D per million positions", followed by Canada, Sweden, Denmark, Singapore, Norway, Belgium, and Finland. Since this indicator focuses on employment per capita,

developing countries such as India, China, Indonesia, and South Africa, which have larger populations, have a temporary disadvantage in terms of talent quality (figure 1.3).

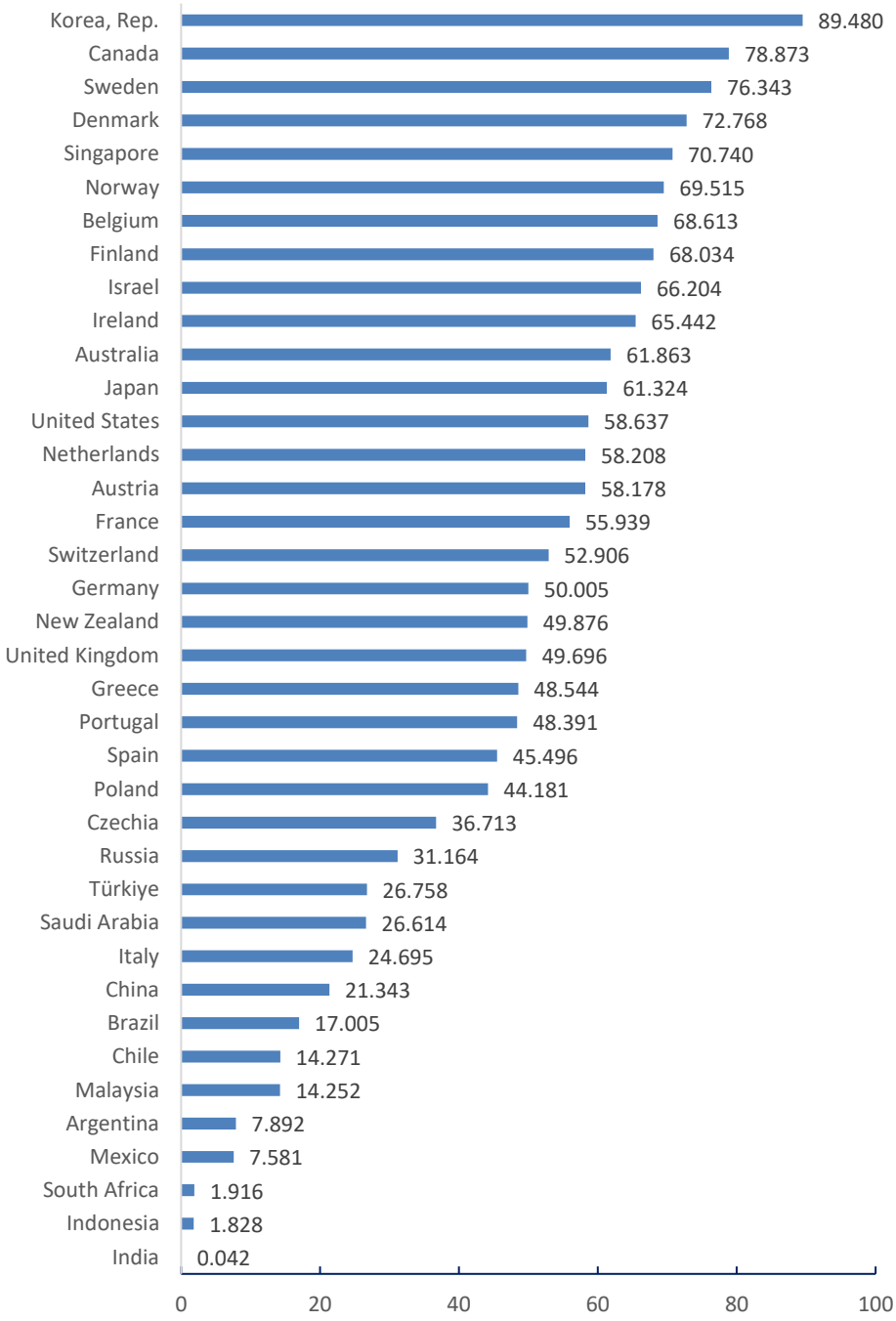

Figure 1.3 Talent quality rankings for 38 countries (on a 100-point scale)

In terms of talent environment, the United States and China have a clear advantage. The US ranks first in "PM2.5 mean annual exposure (μg/m³)", "Fortune Global top 500 (proportion)", "QS top 1000 (percentage)" and "CO2 emissions per capita (t/person)",

followed by China. The UK, France, Germany, Japan, Spain, Italy, and Switzerland are ranked from 3rd to 9th. Brazil, Sweden, the Netherlands, Portugal, Australia, Mexico, Indonesia, Finland, Denmark, and Canada are ranked from 10th to 19th. Ireland, New Zealand, Argentina, Belgium, Austria, Malaysia, the Republic of Korea, Greece and Norway are ranked from 20th to 29th. Türkiye, Chile, Israel, South Africa, Czechia, Poland, Singapore, Russia, and Saudi Arabia are ranked from 30th to 38th (see figure 1.4).

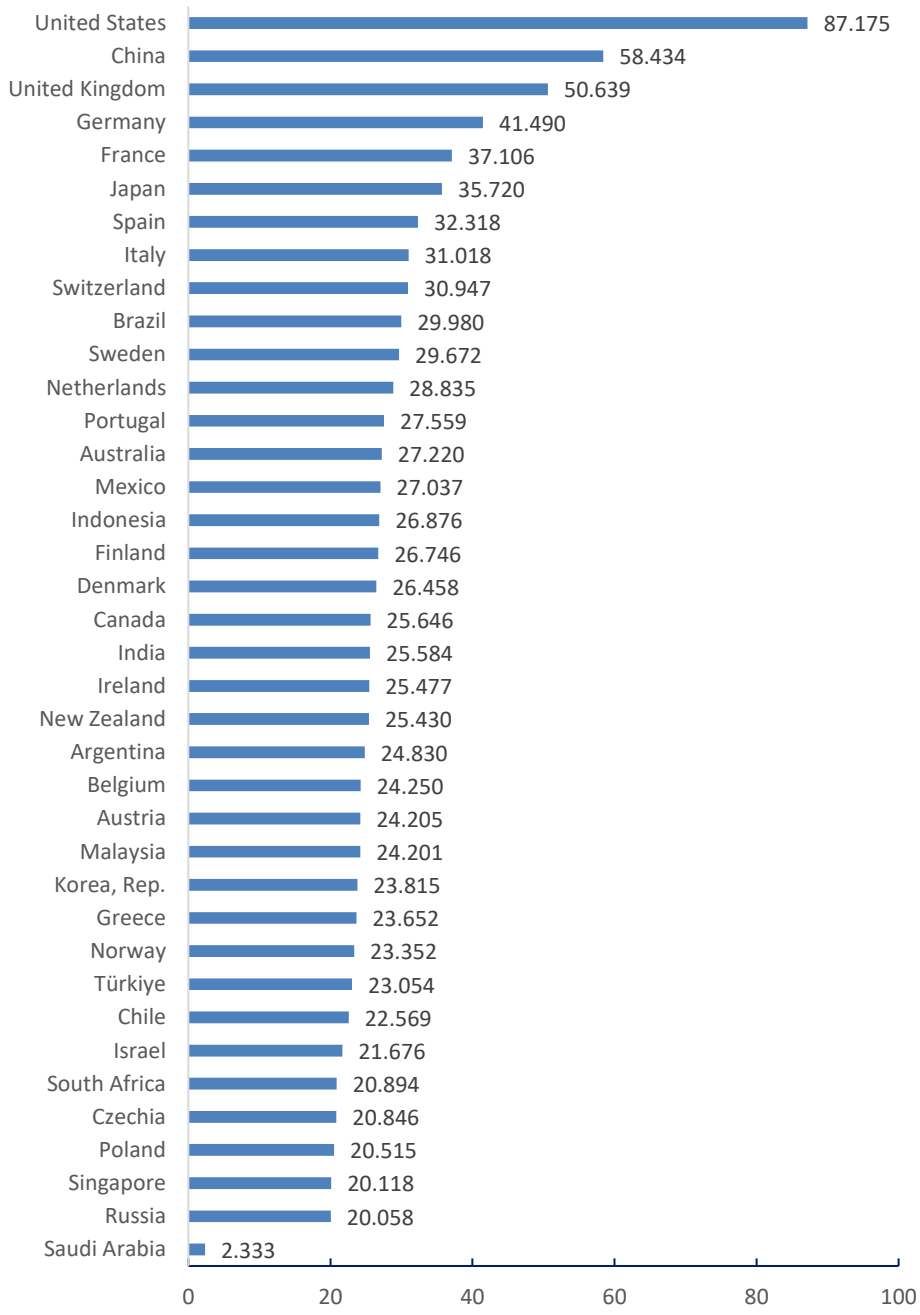

Figure 1.4 Talent environment index rankings for 38 countries (on a 100-point scale)

The US and Israel take the top two spots in terms of talent input. The three indicators, “Share of public education expenditure in GDP (%)”, “Share of research and development expenditure in GDP (%)” and “Current health expenditure in GDP (%)”, represent the total investment in education, research and development and health care relative to GDP. The US and Israel have the highest scores, followed by Sweden, Belgium, the Republic of Korea, Switzerland, Germany, Finland, and Austria. France, the UK, Denmark, Japan, the Netherlands, Australia, New Zealand, Portugal, Canada, and South Africa rank between 10th and 19th. Brazil, Czechia, Chile, Spain, Argentina, Greece, Italy, Norway, China, and Saudi Arabia rank from 20th to 29th. The data suggest that while there remains a wide gap between China and the top ten nations, the country shows a large potential for future increases in total investments, placing itself relatively well among other developed countries (see figure 1.5).

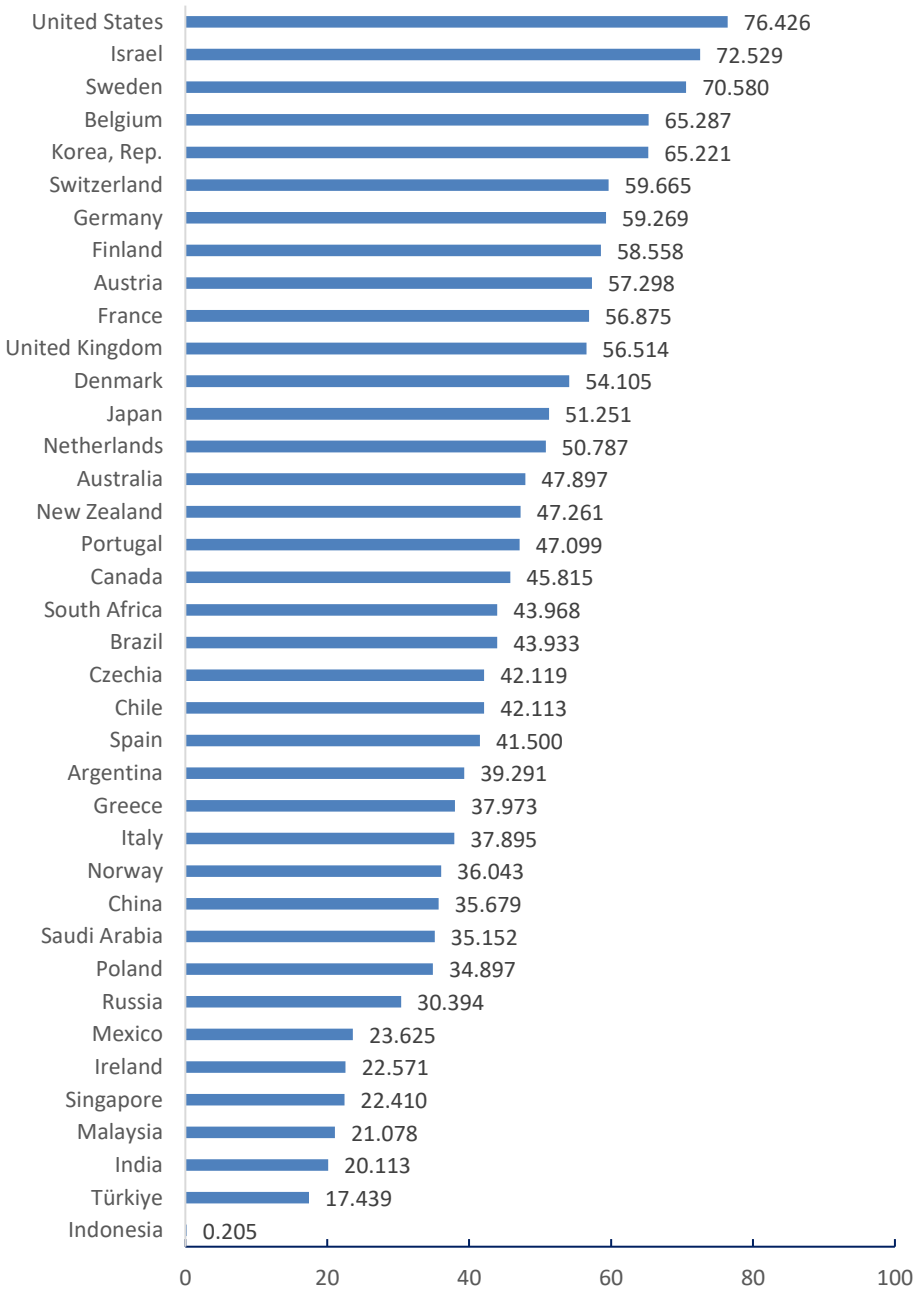

Figure 1.5 Talent input index rankings for 38 countries (on a 100-point scale)

In terms of talent performance, Singapore ranks far above all other countries in three indicators including “Labour productivity (GDP/ Employment)”, “Number of active patents per capita in the labour force”, and “Proportion of value added in medium and high-tech manufacturing to total manufacturing value added (%)”. Following Singapore are the Republic of Korea, Ireland, Switzerland, and the US. Japan, Germany, and Denmark also exhibit a strong performance. On the contrary, Chile, South Africa, and Indonesia demonstrated a relative weakness (see figure 1.6).

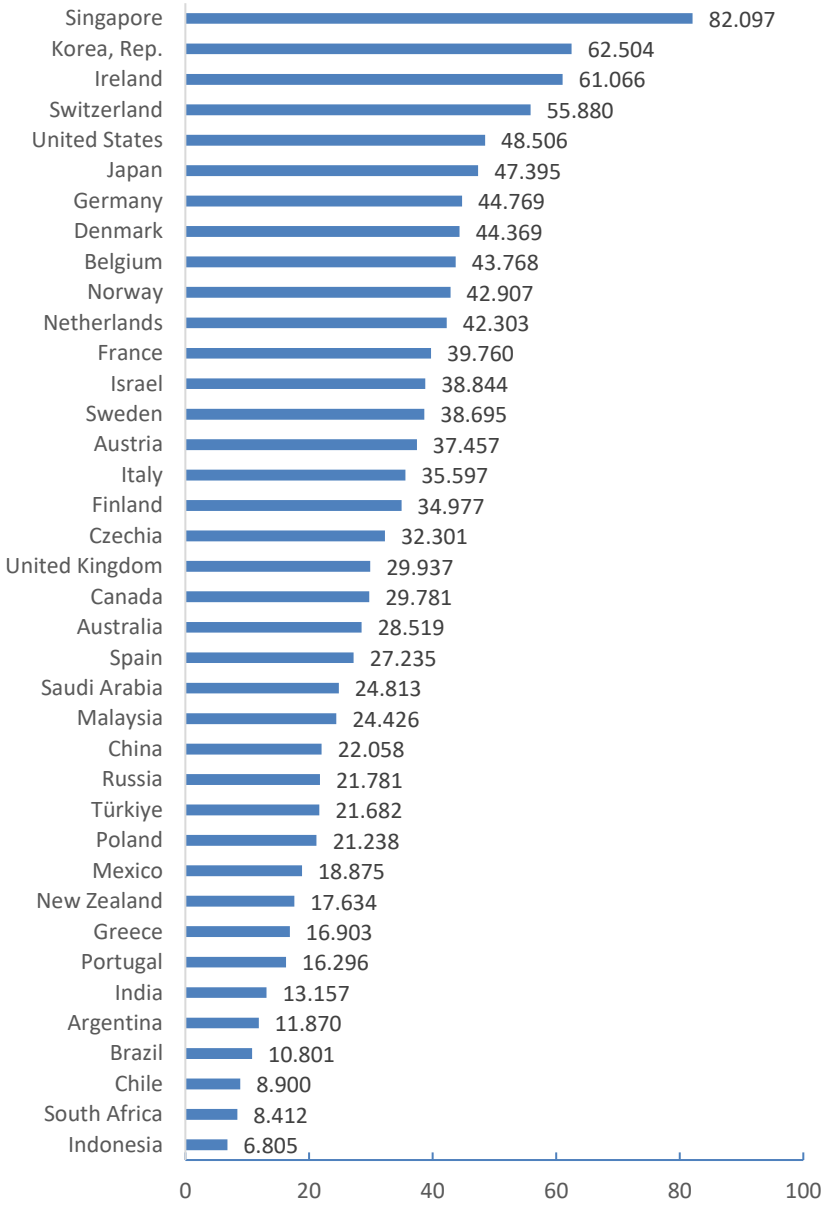

Figure 1.6 Talent performance index rankings for 38 countries (on a 100-point scale)

China's Talent Competitiveness

In looking at China's scores for all five indicators, we find that China has the highest score in terms of scale (100), followed by environment with 58.434 points, followed by input (35.679 points), performance (22.058 points), and quality (21.343 points).

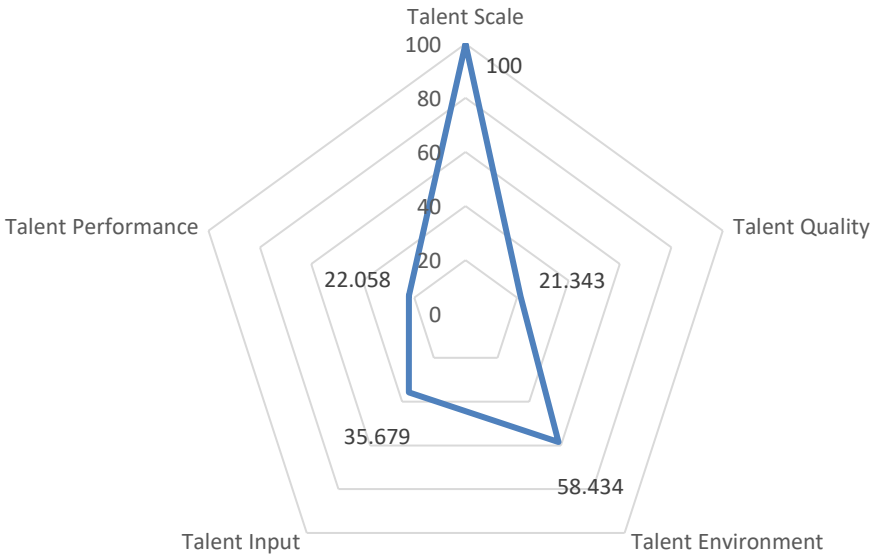

Figure 1.7 China's talent competitiveness index scores by indicators (on a 100-point scale)

In terms of the overall talent competitiveness index, we find that China ranked the fifth, behind United States, the Republic of Korea, Sweden, and Japan, although this position does not yet align with the country's economic scale and international standing, the trend is upward. The recent improvement can be attributed to a series of more proactive, open, and efficient talent policies, which have simultaneously optimized domestic training and deployment mechanisms and strengthened China's appeal to high-caliber professionals from abroad. For example, the Outline of the 14th Five-Year Plan for National Economic and Social Development and the Long-Range Objectives through 2035 (promulgated in 2021) explicitly calls for "exploring the establishment of a skill-based immigration system." In 2024, the Third Plenary Session of the 20th CPC Central Committee further stated that China would "improve support mechanisms for attracting overseas talent, build a globally competitive talent system, and explore the establishment of a high-technology talent immigration regime."

As domestic talent policies have been refined and exit-entry facilitation deepened, both talent inflows and return migration have accelerated. According to Ministry of Education statistics, between 1978 and 2019, approximately 4.23 million Chinese students—86.28 percent of all graduates—returned to China after completing their studies abroad; in 2019 alone, 580,300 returnees were recorded. In 2020, the number of students returning exceeded that of those leaving for overseas study for the first time,

and in 2021, the total surpassed one million. Although the pace of return slowed somewhat in 2023, the overall upward trend persisted.

A 2024 report by Stanford University's Center on China's Economy and Institutions documents similar dynamics among ethnic Chinese scientists. The study finds that, since 2018, the number of ethnic Chinese scientists departing the United States has increased by 75 percent, with two-thirds relocating to China. The absolute number has risen from 900 in 2010 to 2,621 in 2021, with the majority choosing to take up positions in China.

In terms of talent scale, China and the United States both display notable competitive strengths; nevertheless, the data indicates that China outperforms the United States by a considerable margin.

According to the Plan for Building an Educational Power Construction (2024 – 2035) issued in 2025, China has placed renewed emphasis on higher-education expansion and sustained investment in human capital formation. Nevertheless, in the Talent Quality Indicator, China currently ranks 30th, indicating short-term pressure. Both second-tier indicators—the number of people with advanced education per million working-age people and the number of researchers in R&D per million positions —are calculated on a per-capita basis. China's extensive labour and employment denominators depress its composite talent-quality score. It is worth noting, however, that China is exhibiting a pronounced upward trajectory in the first of these two sub-indicators (Number of people with advanced education per million working-age people), suggesting catch-up dynamics driven by the country's strategic commitment to expanding higher education and enhancing talent development.

In terms of the talent environment indicator, China ranks second among all countries, which indicates the country's sustained efforts to optimize the working and living conditions for skilled talents, notably by building dedicated talent-development platforms and by achieving significant improvements in ecological quality. As early as October 2013, President Xi Jinping emphasized at the 100th anniversary of the establishment of the Western Returned Scholars Association saying that "If the [talent] environment is good, the pool of talent will build and careers will flourish; otherwise, people will scatter, and careers will fail. We should improve the operations, enhance services, strengthen education and guidance, build innovative platforms, and get better at discovering, consolidating, and utilizing talent, creating a good environment for students [seeking education abroad] to return and work in their homeland.". In the

recent decade, China has developed a comprehensive, systematized framework for enhancing the talent-development environment—one that extends from national-level strategy to local-level practice.

In the talent input Indicator, China ranks 28th among all countries. The data indicate a noticeable gap between China and leading countries such as the United States and Sweden in relative input intensity. However, the distance from other advanced economies is comparatively modest. In absolute terms, China shows significant growth potential. The Central Conference on Talent Work, held in September 2021, underscored the need to increase investment in talent development and to enhance the efficiency of that investment—thereby laying a policy foundation for further potential gains.

In terms of the talent performance indicator, China ranks 25th. China's talent performance indicator is roughly one-quarter that of Singapore, suggesting room for improvement in fully leveraging human capital and advancing institutional reform. Nonetheless, incremental progress has been recorded. Following the 20th National Congress of the Communist Party of China, President Xi Jinping emphasized that developing "new-quality productive forces" is both an intrinsic requirement and a key lever for high-quality growth. He called for fostering a virtuous cycle among education, science, technology, and talent and for refining mechanisms governing talent cultivation, attraction, utilization, and rational mobility.

Chapter 2: The Present Status and Trends in Global Talent Flow

Concepts of Global Talent Flow

Talent

China's National Program for Medium- and Long-term Talent Development (2010 to 2020) defines *talent* as "a person who has certain professional knowledge or skills, who performs creative work and contributes to the society, creating value for the society, and those who are relatively high quality in the labour force considered by metrics of human resources." In the Contemporary Chinese Dictionary, talent is defined as "a person who possesses both integrity and ability; a person who has certain specialties."

In other countries, concepts closer to the meaning of what talent means in China are human capital and human resources. In the 19th century, some scholars categorized human capital as a crucial component of national competitiveness. German economist Friedrich List emphasized the importance of incentive mechanisms and tapping intellectual resources i.e., human capital in his interpretation of the mental power level within the three levels of national productivity. In 1954, Peter F. Drucker first coined the term "human resources" in his book The Practice of Management, arguing that the first sign of decline in an industry is the loss of appeal to qualified, able, and ambitious people.[①]

This report defines *talent* as a person who possesses specific knowledge and capabilities and who can contribute to society.

Talent Flow

Talent flow can mean the movement of talent in physical spaces or among industries and occupations.[②] In this report, *talent flow* focuses on the movement of talent

① Huiyao, Wang. International Talent Competition Strategy [M]. Beijing: Party Building Readers Publishing House, 2014:5.
② Wang Huiyao, Miao Lu, Zheng Jinlian. Introduction to International Talent Studies [M]. Beijing: China

across countries and regions. In the chapter "A Cross-Disciplinary Perspective on Trends in Global Talent Flows", it also covers talent moving between industries and occupations. Many factors contribute to the flowing of talent, mostly the knowledge economy, globalization, differences in demographic structures, and policy on human resources by different governments. Talent flow in physical spaces, as defined by this report, includes three patterns: talent outflow or inflow (unilateral), talent return (bilateral), and talent circulation (multilateral).

Talent outflow is a moving pattern defined from the perspective of talent-exporting countries, i.e., the movement of talent from one country to another. For talent-importing countries, this can be interpreted as *talent inflow,* but whether it is "outflow" or "inflow", talent flow indicates unilaterality.

The process of talent flowing from country A to country B and back to country A is called *talent return*. In the case of *talent return*, talent flowing out from country A may have acquired knowledge in frontier technologies or management skills after studying or working in country B. When these individuals return to country A, they bring back knowledge obtained in country B such as cutting-edge technologies, different thought processes, management skills, etc.

Talent circulation is the circular flow of talent between an outflow country, an inflow country and a third country. In the process of talent circulation, talent circulates between countries A, B, and C, so that the three countries are no longer simply exporting or importing talent unilaterally but can do both. In terms of physical space in this context, talent circulation covers two or more countries; as for the frequency an individual changes location, they are no longer limited to moving permanently and may move multiple times during their career. In terms of the utility of the flow, talent circulation is not a zero-sum game, but a win-win situation in which all sides can benefit. [①] Talent circulation promotes the exchange of resources, capital, and technology for mutual benefit, boosting the socio-economic development of all countries involved.

Personnel Press, 2020: 24.

① Hongliang, Du. Qiqige, Wuyun. Making China an Important Pole in the Global Talent Circulation [EB/OL]. (2012-04-27) [2022-10-07]. http://www.kjw.cc/2012/04/27/29930.html.

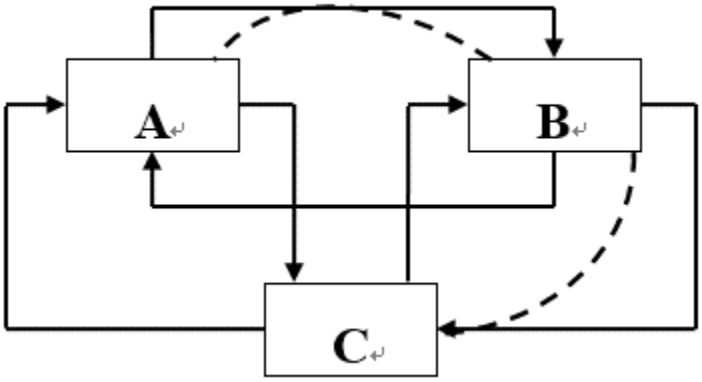

Figure 2.1 Talent circulation

Source: Yi, Wang. Towards A Global Talent Hub: Its Concept and Development Strategy [J]. Scientific Development. 2013 (02): 89-99.

The Current Status of Global Talent Flows across Regions

The definition of "talent" varies from country to country, and there is no universally accepted standard for monitoring the flow of talent around the world. This report carries out a preliminary analysis of the current state of inter-regional talent flows by tracking the flow trends among international migrants,[①] especially work-based international migrants and international students, from 2000 to 2024.

① The "Recommendations on Statistics of International Migration" officially published by the United Nations Bureau of Economic and Social Affairs in 1998 defines an 'international migrant' as anyone who changes their Country of Usual Residence (excluding those who leave for short periods for recreation, vacation, business, medical or religious reasons). It divides "international migrants" into "Short-term Migrants" and "Long-term Migrants". "Short-term Migration" refers to moving to another country other than the country of origin for at least 3 months and less than one year (12 months); "Long-term Migration" refers to moving to a country other than the country of origin for at least one year (12 months), with the country of destination becoming the de facto new country of permanent residence. In terms of the emigration country, a "Long-term Migrant" is equivalent to a "Long-term Emigrant". In terms of the countries of immigration, a "Long-term Migrant" is equivalent to a "Long-term Immigrant".
The International Organization for Migration (IOM) defines an "international migrant" as a person who leaves his or her country of origin or previous country of residence, crosses national borders, and lives permanently or for a certain period of time in another country for the purpose of settlement. At the same time, special emphasis is placed on the relationship between "international migration" and "social development". "When talking about migration and development, the 'migrants' are those who are not forced by any external factors and make their own choices to migrate, excluding refugees, exiles or diasporas." In this report, the definitions and data of international migration provided by the United Nations Economic and Social Affairs Statistics Bureau and the International Organization for Migration are basically the same.
The form and purpose of transnational migration of international migrants can be divided into work-based international migrants, investment-based international migrants, reunion-based international migrants, learning-based international immigrants, crisis migrants, illegal migrants, and other categories. This report mainly involves work-based international migrant and learning-based migrant (i.e., international students).

Status of Global Talent and International Migration Flows ①

1. The Influencing Factors of Global Talent Flows

Under the complex international landscape, the uncertainty of global affairs has accelerated the development of global talent flows. As of April 2025, the number of forcibly displaced people worldwide has reached 122.1 million②, among whom a significant number are science and technology professionals relocating across borders. At the same time, global economic growth continues to drive demand for skilled talent. Despite geopolitical conflicts, economic globalization has shown remarkable resilience. The total value of global trade has increased from $63 billion in 1950 to $33 trillion③ in 2024—an over 500-times increase—demonstrating the prevailing trend of cooperation and development.

In this context, the strategic importance of talent—as a core element of innovation—has risen significantly, playing a crucial role in driving economic recovery, fostering innovation, and addressing future challenges. For example, during Singapore's economic boom in the 1990s, foreign migrants contributed to 40% of GDP growth. In 2021, Germany admitted 532,000 long-term migrants, with foreign scholars making up 52% of research positions at the Max Planck Society. In the United States, immigrants founded 43% of Fortune 500 companies, and in 2023 alone, the country issued 1.17 million green cards, highlighting its strong pull for global talent.④

① Unless otherwise stated, the source of data in this part are all from IOM's World Migration Report (2022).
② UNHCR China. (2025, June 12). War drives displaced population to highest in a decade. Retrieved June 20, 2025, from https://www.unhcr.org/cn/19599-%e6%88%98%e4%ba%89%e8%87%b4%e6%b5%81%e7%a6%bb%e5%a4%b1%e6%89%80%e4%ba%ba%e6%95%b0%e5%88%9b%e5%8d%81%e5%b9%b4%e6%96%b0%e9%ab%98.html.
③ UNCTAD. (2025, March). Global trade hits record high of USD 33 trillion in 2024. Retrieved from https://tradeinservices.mofcom.gov.cn/article/news/gjxw/202503/173871.html.
④ Wang, H., Miao, L., & Zheng, J. (2024). Improving support mechanisms for attracting overseas talent to empower the development of new quality productive forces. Think Tank Theory and Practice, 9(05), 24–30.

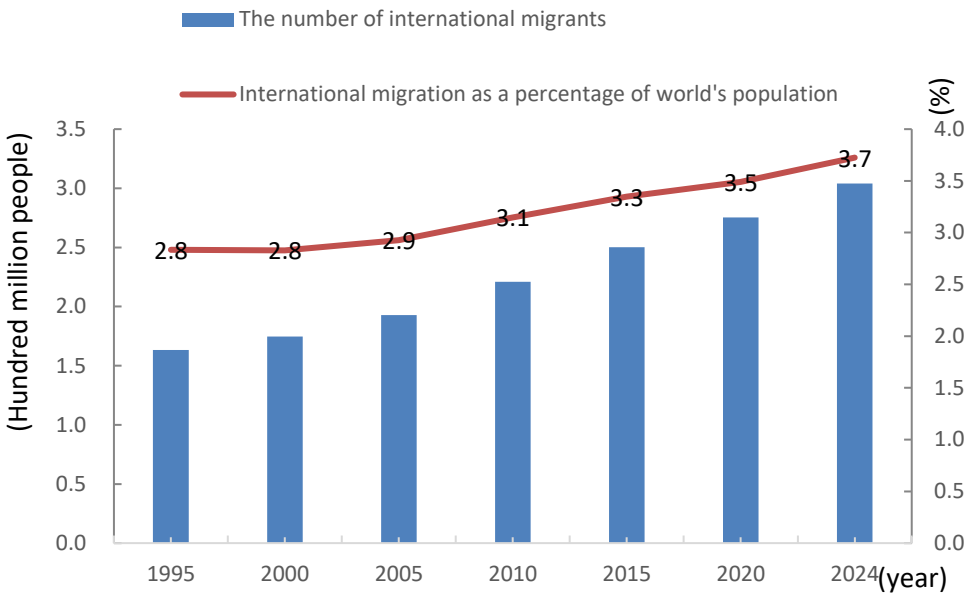

Figure 2.2 Number and percentage of international migrants, 1995-2024

Sources：UNDESA: International migrant stock 2024.Accessed June 5, 2024.

2. Global Patterns and Trends in International Migration Flows

In terms of total volume, the number of international migrants continues to grow, with migration primarily flowing from developing countries such as India and Mexico to developed countries like the United States and Germany. In 2024, there were nearly 304 million international migrants worldwide. The United States ranked first, hosting 52.4 million migrants, with the main countries of origin being Mexico (10.85 million), India (2.72 million), and China (2.18 million). Germany received 16.8 million migrants, and Saudi Arabia followed with 13.7 million, ranking second and third respectively. India was the largest country of origin for migrants, with 18.53 million emigrants, followed closely by China (11.7 million) and Mexico (11.6 million).[①]

From a structural perspective, labour migrants constitute the main body of international flows, with significant regional distribution and gender differences, and high-skilled migrants are widely welcomed. First, labour migrants primarily move to wealthy countries. In 2019, 169 million labour migrants accounted for 62%② of the total international migrants. Three major regions—Northern/Western Europe (41 million), North America (37 million), and Arab countries (24 million)—together accounted for 60% of the global labour migrant population. Second, social and cultural

① UNDESA: International migrant stock 2024.Accessed June 5, 2024.
② ILO. ILO Global Estimates on International Migrant Workers Results and Methodology, 2021.

factors greatly influence gender disparities. In Arab countries, labour migrants make up 41.4% of the labour market, with a pronounced gender imbalance (19.9 million males vs. 4.2 million females). Similarly, South Asia shows gender imbalance, with 5.7 million male labour migrants compared to only 1.4 million female migrants, reflecting the combined effects of traditional gender roles, labour market demand structures, and socio-cultural factors. Third, high-skilled talent has become the focus of migration policy preferences worldwide. Although 66.2% of migrants globally work in basic service sectors, competition for high-skilled workers is intense. The United States' Employment-Based Preference visas, aimed at attracting high-skilled labour migrants, increased from 28,538 issued in 2019 to 46,508 post-pandemics. [①]The EU Blue Card—a legal work and residence permit for high-skilled non-EU nationals—issued 82,000 cards in 2022, with Germany accounting for 77%. Indian nationals received 20,000 EU Blue Cards (24%), followed by Russia (8,000) and Turkey (5,000) as the second and third largest recipients.

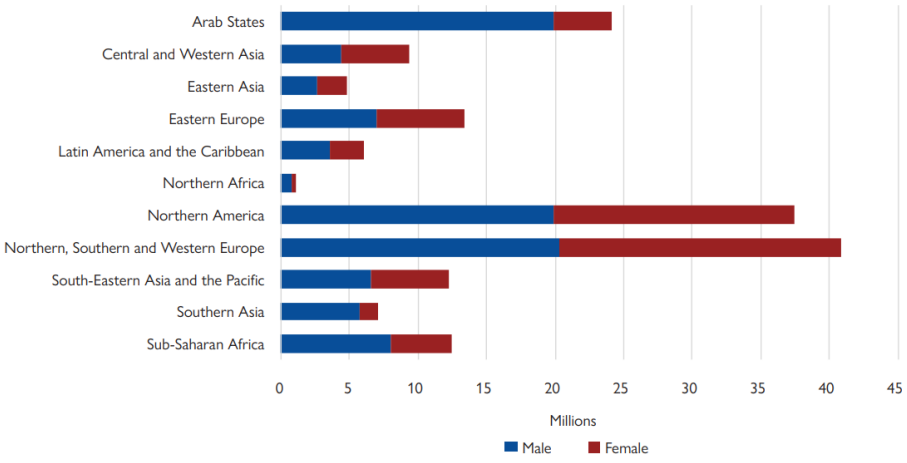

Figure 2.3 Geographic Distribution of Labour Migrants by Gender in 2024.
Source: IOM. World Migration Report 2024.

Global Patterns and Trends of International Student Flows[②]

1. The number of international students has continued to grow, though the pace

① https://travel.state.gov/content/dam/visas/Statistics/AnnualReports/FY2023AnnualReport/FY2023_AR_TableI.pdf .

② This section is primarily based on: Western Returned Scholars Association (WRSA) & Center for China and Globalization (CCG). (2024–2025) Report on the Development of Chinese Overseas Study. Beijing: Social Sciences Academic Press.
Chinese Service Center for Scholarly Exchange (CSCSE). (2025) Blue Book on Chinese Overseas Study. Beijing: China Yanshi Press.

has slowed since 2020

The number of international students in global higher education rose from 2.11 million in 2000 to 6.86 million in 2022—an increase of more than twofold. However, since 2019, factors such as the global pandemic and economic adjustments have led to a noticeable slowdown in growth. While the overall number of international students has continued to rise, the average annual growth rate between 2020 and 2022 was 4.1%, significantly lower than the 6.7% recorded in 2019 and below the overall growth rate of the global higher education student population.

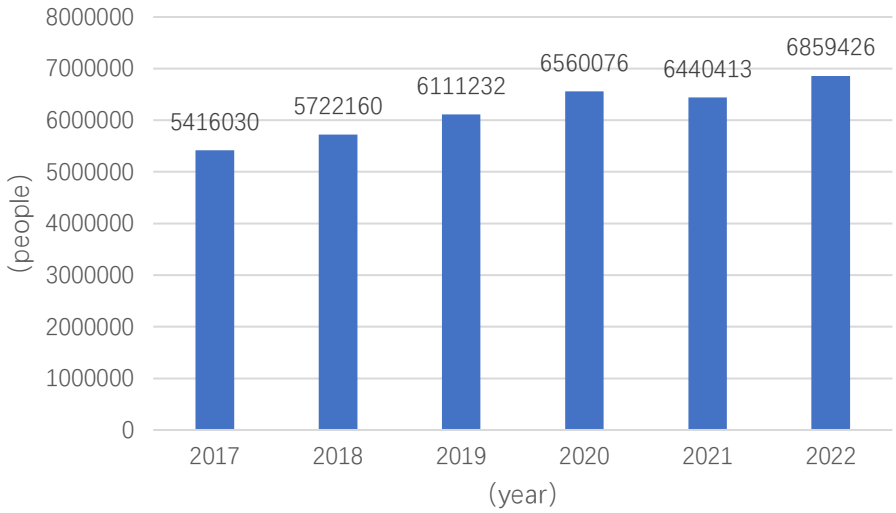

Figure 2.4 Global Number of International Students, 2017–2022

Source: UNESCO. Number and rates of international mobile students [EB/OL]. [2025-02-15]. http://data.uis.unesco.org/#.

2. International students mainly flow from developing countries such as China and India to major education destinations like the United States and the United Kingdom

International students primarily come from middle-income countries or regions. From 2018 to 2022, students from these areas consistently accounted for over 60% of the total international student population, with a slow upward trend. Among them, China and India are the top two source countries for international students globally. In 2022, approximately 1.052 million Chinese and 622,000 Indian students were enrolled in higher education institutions abroad, representing 15.3% and 9.1% of the global international student population, respectively.

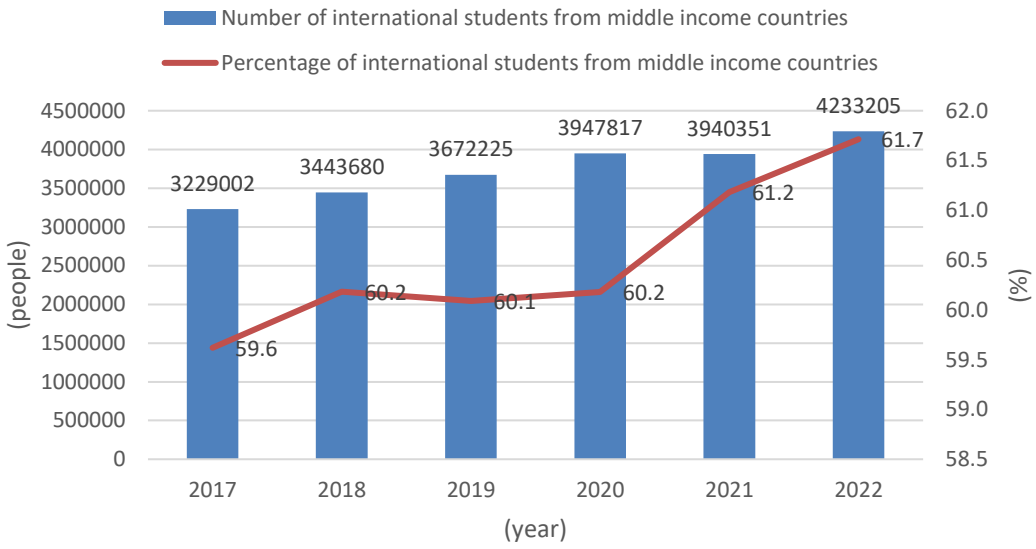

Figure 2.5 Number and Proportion of International Students from Middle-Income Countries or Regions, 2017–2022

Source: UNESCO. Number and rates of international mobile students [EB/OL]. [2025-02-15]. http://data.uis.unesco.org/#.

International students predominantly choose high-income countries or regions as their study destinations. Since 2017, more than 75% of international students have been enrolled in higher education institutions in high-income countries, though this proportion has shown a gradual decline—from 79.1% in 2018 to 75.8% in 2022. Among these destinations, the United States and the United Kingdom consistently rank as the top two. In 2022, the U.S. hosted approximately 949,000 international students and the U.K. hosted 675,000, accounting for 13.8% and 9.8% of the global international student population, respectively.

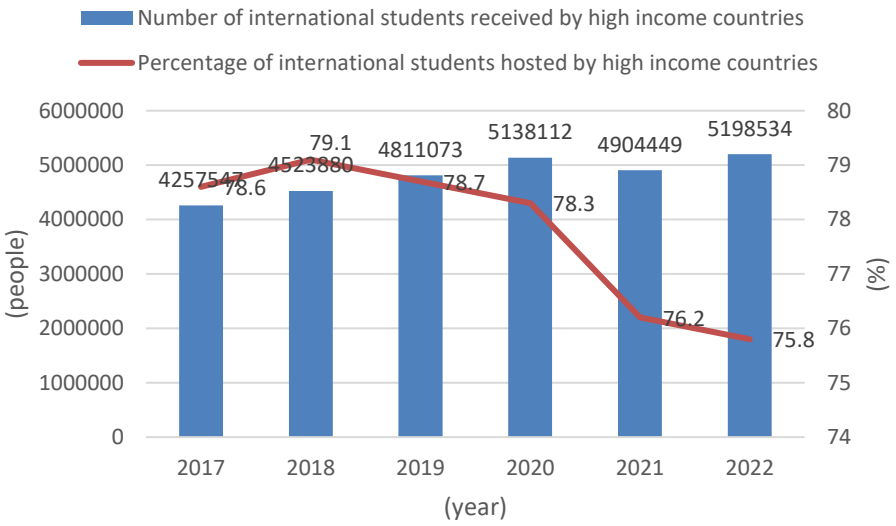

Figure 2.6 Number and Proportion of International Students Hosted by High-Income Countries or Regions, 2017–2022

Source: UNESCO. Number and rates of international mobile students [EB/OL]. [2025-02-15]. http://data.uis.unesco.org/#.

3. International students tend to favor STEM fields, with a relatively high proportion enrolled at the graduate level

Regarding field of study, international students and domestic students in OECD countries show significant differences in their choices. On average, over 30% of international students tend to choose STEM majors, compared to only 19% of domestic students in OECD countries. In terms of education level, international students in OECD countries are significantly more concentrated at the graduate level than at the undergraduate level. In 2022, international students accounted for 5% of the total undergraduate student population, 15% of master's degree students, and 25% of doctoral students in OECD countries.

The global cross-sector mobility of talent continues to accelerate.

The deep application and innovative development of digital technologies are reshaping the global economic competition landscape while significantly increasing the market demand for digital talent, giving rise to new trends in global talent flows. In recent years, the rapid iteration of digital technologies has driven the development of

new quality productive forces characterized by "high technology, high efficiency, and high quality." Technologies such as artificial intelligence, cloud computing, and blockchain have optimized the allocation of data resources, propelling the global digital economy's scale from $38.1 trillion in 2021 to an estimated $53.9 trillion in 2025, accounting for 45% [①]of global GDP. According to the World Economic Forum, among the top 20 fastest-growing job categories between 2025 and 2030, most are directly related to digital skills. [②]Foxconn's "Lighthouse Factory" in Zhengzhou, China, has achieved a 102% increase in production efficiency through the industrial internet. Nearly half of the world's "Lighthouse Factories" are located in traditional industries, illustrating the transformative effect of digital technology on the occupational ecosystem. McKinsey predicts that by 2030, automation technologies will replace about 30% of occupational activities but will simultaneously create 130 million new jobs.[③]

Table 2.1 Top 20 Job Roles with the Highest Demand Growth Across Industries, 2025–2030

Big Data Specialist	**Data Analyst and Scientist**
FinTech Engineer	Environmental Engineer
Artificial Intelligence and Machine Learning Specialist	Information Security Analyst
Software and Application Developer	DevOps Engineer
Security Management Specialist	Renewable Energy Engineer
Data Warehouse Specialist	Robotics Engineer
Autonomous Driving and Electric Vehicle Specialist	Blockchain Developer
UI and UX Designer	Data Engineer
Light Truck or Courier Service Driver	Digital Transformation Specialist
Internet of Things (IoT) Specialist	Process Automation Specialist

Source: World Economic Forum. Future of Jobs Report 2025.

① China Academy of Information and Communications Technology. (2022, July 29). Global Digital Economy White Paper (2022). Retrieved October 8, 2022.
② World Economic Forum. (2025, January). The Future of Jobs Report 2025 [Research report]. Retrieved March 26, 2025, from https://reports.weforum.org/docs/WEF_Future_of_Jobs_Report_2025.pdf.
③ 10 McKinsey Global Institute. Generative AI and the future of work in America. [EB/OL].(2023-07-26)[2025-03-27].
https://www.mckinsey.com/mgi/our-research/generative-ai-and-the-future-of-work-in-america.

Chapter 3: Policy Trends and Global Talent Flows

Transnational mobility of talent has become a prevailing feature in the process of globalization, with talent making an increasingly significant contribution to economic growth and industrial development in destination countries. In light of this trend, many nations have introduced policies designed to attract more talent for employment, entrepreneurship, and settlement, thereby leveraging international intellectual resources to promote national economic and social advancement. The current complex international landscape is accelerating the emergence of a multipolar, regionalized, and digitalized world order, which in turn is intensifying global competition for talent as countries seek to expedite economic recovery. Under these new circumstances, numerous countries are adopting targeted policy measures to attract greater inflows of high-level talent.

The United States:

The Biden Administration extends STEM degrees and relaxes immigration policies

In January 2022, the U.S. Department of Homeland Security officially released the “The updated DHS STEM Designated Degree Program List” adding 22 new STEM disciplines, including Bioenergy, Environmental Geosciences, Data Science, Computational Social Sciences and others. In 2023 and 2024, new fields such as Landscape Architecture, Mechatronics, Robotics, Automation Engineering Technology/Technician, Composite Materials Technology/Technician, Linguistics and Computer Science, Developmental and Adolescent Psychology, Geospatial Intelligence, Demography and Population Studies, and Environmental/Natural Resources Economics were also added. This update covers several emerging technology fields and interdisciplinary subjects, aiming to allow more students to benefit from related preferential policies for STEM majors, significantly expanding the scope of international talent recruitment.

In January 2022, the Department of Homeland Security revised the U.S.

Citizenship and Immigration Services (USCIS) Policy Manual Guidance to ensure that STEM professionals were able to apply for permanent residency and conveniently benefit from Optional Practical Training (OPT) programs.[①] This guidance states that, starting from 2022, the National Interest Waiver (NIW) will apply to a significant number of STEM professionals and entrepreneurs. In other words, their employers or proxy applicants do not need to prove that no qualified U.S. worker is available for the job. In addition, the Immigration and Nationality Act (INA) stipulates that an employer can file an immigration petition for an employee with exceptional abilities or an advanced degree. USCIS can also waive the relative requirement of job opportunities and allow immigrants who work in the national interest to apply for themselves without an employer. Obtaining a National Interest Waiver (NIW) means easier application, easier approval of green cards, and shorter waiting periods. The guidance also updated the policies regarding STEM professional's application of Optional Practical Training (OPT) programs. It clearly stated that eligible F-1 student candidates can apply to a STEM OPT extension up to 24 months. What is more, if students received a higher eligible STEM degree in the future, they could use that degree to apply for an additional 24 months of STEM OPT.[②]

The International Talent Policies of the Trump administration 2.0

Within the first week of Trump's second term in the white house, the administration implemented 98 executive orders, including 10 orders directly related to immigration policies, setting the record for the highest number of immigrations-related executive orders issued by a US president in the first 100 days of presidency in over forty years. These executive orders include Protecting the American People Against Invasion, Protecting the Meaning of American Citizenship and others.[③] Currently, the

① U.S. Citizenship and Immigration Services. "USCIS Updates Guidance on National Interest Waivers". [EB/OL]. (2022-01-21) [2022-10-08]. https://www.uscis.gov/newsroom/alerts/uscis-updates-guidance-on-national-interest-waivers.

② Certain content come from：Jianlian Zheng, Jingrong Jiang，Yuxuan Zhang. Analysis of current study abroad situations on the popular study abroad destinations in North America[M] //Western Returned Scholars Association（Overseas-educated Scholars Association of China），Center for China and Globalization（CCG）. Annual Report on the Development of Chinese Students Studying Abroad (2024~2025). Beijing: Social Sciences Academic Press (China), 2025:51-54.

③ Federal Register. 2025 Donald J. Trump Executive Orders [EB/OL]. [2025-03-28]. https://www.federalregister.gov/presidential-documents/executive-orders/donald-trump/2025.

Trump administration's policy regarding global talent recruitment and management mainly focuses on strengthening the visa vetting processes and enhancing the compliance reviews of H-1B (specialty occupations) employers.

The visa application process will be subject to stricter "enhanced vetting", resulting in an increase in the time needed for processing, and a rise in the number of RFEs (Request for Evidence), which could delay visa processing and affect the eligibility of students and employers, creating inconvenience for international talents. On June 18th, 2025, the US Department of State announced that the country will expand its screening and vetting policies for student visa applicants by reviewing the contents applicants post on social media. The department declares that this is a necessary measurement to protect US national interests through identifying and preventing those who bear hostile attitudes to the US government, culture, and principles from entering the country. To facilitate this process, applicants are required to adjust their social media settings so that their contents can be publicly viewed.

Currently, international students holding an F-1 visa who have recently completed a STEM degree may apply for OPT (Optional Practical Training) with a maximum duration of 12 months plus a 24-month extension, along with a 90-day job search period. The Trump administration has considered shortening the overall period to 12 months or less, which would significantly reduce the cost-effectiveness of hiring foreign employees and exacerbate the labor shortage in the STEM industry.

To strengthen compliance reviews of H-1B employers, the FDNS (Fraud Detection and National Security) will conduct routine on-site visits to verify whether employers are paying wages consistent with the local salary levels and whether the employee's actual work location matches their registered address.[①] Employers found in violation of the requirements will face fines, adding extra concerns for employers when hiring foreign workers, thereby reducing the number of foreign worker positions available in the US. The country is also planning to implement reforms to the H-1B visa policy in 2025. In response to the concerns regarding some companies abusing foreign labor and undercutting wages, the new policy will contain two key measures: a significant increase in the minimum wage standard for foreign employees to ensure that companies hire skilled foreigners only for positions with a genuine technical shortage and an enhancement of regulation with the Department of Homeland Security carrying

① Im, J. Y. How the Trump 2.0 Immigration Policy Will Impact Tech Employers [EB/OL]. (2025-03-03) [2025-03-28]. https://www.fisherphillips.com/en/news-insights/how-the-trump-immigration-policy-will-impact-tech-employers.html.

out employer compliance reviews and the Immigration and naturalization Service and the Department of Labor jointly tackling visa fraud. This move aims to protect domestic employment while accurately attracting skilled high-tech talents.[①]

Republic of Korea[②]:

Attracting International Students to Study in South Korea

As South Korean universities have a relatively low level of internationalization and a weak competitiveness on the global stage, there is an urgent need to enroll more international students to facilitate diverse learning experiences on campus and enhance the country's global influence. In addition, as the South Korean society is facing challenges such as low birth rates and labor shortages, attracting international students to promote the employment of foreigners has been seen as a solution to the country's problems, which in turn received firm support from the South Korean government. On August 16, 2023, the central government of the Republic of Korea announced the new "Study Korea 300k Project," which aims to recruit 300,000 international students by 2027. To achieve this ambitious goal, a series of policies are implemented to support the enrollment, education, employment, and settlement of international students with more policies to be introduced.

To recruit more international students, the South Korean government has relaxed the requirements of obtaining student visas. On July 3rd, 2023, the newly enacted visa policy lowered the required deposit for student visa applications. For D-2 visa applicants, the deposit requirement has been reduced from 26 million KRW (South Korean won) to 20 million KRW. The deposit requirement for language study visas (D-4 visas) have been lowered from 13 million KRW to 10 million KRW. Additionally, for students planning to study outside of South Korean major cities, the deposit requirements can be further lowered to 16 million KRW (D-2 visa) and 8 million KRW (D-4 visa). This policy makes it easier for international students from average-income

① McLaughlin, R. H-1B Prevailing Wage Changes Under Trump: What Employers Need to Know [EB/OL]. (2025-03-20) [2025-03-28]. https://www.boundless.com/blog/prevailing-wage-changes-under-trump/.

② Without further notice, content come from：Jianlian Zheng, Jingrong Jiang，Yuxuan Zhang. Analysis of current study abroad situations on the popular study abroad destinations in North America[M] //Western Returned Scholars Association（Overseas-educated Scholars Association of China），Center for China and Globalization（CCG）. Annual Report on the Development of Chinese Students Studying Abroad (2024~2025). Beijing: Social Sciences Academic Press (China), 2025:51-54.

families to study in South Korea.

Further relaxation of employment policies attracting high quality international students to work in South Korea

To attract international students to work in South Korea, the country's government has introduced a series of policies encouraging international students to work locally, addressing both the employment needs of graduates and the part-time work demands of students. First, the government has provided part-time job opportunities for international students in South Korea, increasing the maximum weekly hours from previously 20 to 25 (students outside major cities can work up to 30 hours per week). Second, to reduce international students' difficulty of working in South Korea, the government has relaxed language requirements. Previously, while international students could only prove their professional language proficiency through TOPIK (Test of Proficiency in Korean), under the new policy, scores from the Sejong Korean Language Assessment (SKA) and the Korean Language Ability Test (KLAT) can also be used to satisfy the language proficiency requirements for work-related purposes. Additionally, to facilitate the retention of international students in South Korea after graduation, the government has also eased the requirements for work visa applications. Previously, foreign workers could only apply for the long-term E-7-4 visa (Region-Specific Skilled Worker visa) after 5 years of experience in the country, but this requirement has now been adjusted to 4 years. Finally, the government has relaxed restrictions on hiring foreign workers, making it more convenient for international students to find employment opportunities in South Korea upon graduation.

Introducing new visa categories to attract skilled high-tech talents

To further attract high quality international talents, South Korea will launch a new round of immigration reforms starting in 2024, including the establishment of a "top tier" visa focused on areas of study like artificial intelligence, semiconductors, and biotechnology. This new visa category comes with strict criteria, aiming to attract only the most elite professionals and contribute to the overall economic development of the

country. Those who are eligible for the visa must be master or doctoral graduates that have obtained their degree from one of the top 100 universities in the world. Additionally, the applicants must have at least eight years of work experience with a minimum of three years working at a top 500 company. Qualified high-skilled talents, upon joining local high-tech companies in South Korea, will be granted long-term work and settlement benefits. These individuals can first obtain a D-10 general job search visa, which allows a maximum stay of two year, and can later transition to an F-2 long-term resident visa. After three years of employment, they can then apply for permanent residency status in South Korea.[①] In addition, to promote regional development, the South Korean government has introduced a "regional" visa program in collaboration with local governments. This program offers preferential benefits to global talents in suitable fields based on regional industrial development differences. For example, cities like Seoul and Busan, which are epicenters of high-tech industries, will relax visa requirements for international students studying in fields such as semiconductors, robotics, and artificial intelligence. Some regions will also increase the part-time hours these students may do. On the other hand, regions like North Jeolla, South Jeolla, and Jeju, which heavily focus on developing basic manufacturing industries and tourism, will relax visa requirements for international students in their fields of emphasis. Moreover, local governments will adjust the thresholds for academic qualifications, language proficiency, and work experience every three years, while also exploring dedicated visa pathways in fields such as robotics, AI, and shipbuilding.[②]

Sweden

Introducing a post-graduation transition period for international students

The Swedish Migration Agency has developed a student-migration framework that covers the entire cycle from entry to study and on to post-graduation transition. International students who have completed at least two semesters of study may apply—

① Koh, H. J. , Top-tier' visa seeks to woo foreign talent to high-tech sectors [EB/OL]. (2025-03-06) [2025-04-10]. https://www.korea.net/NewsFocus/policies/view?articleId=267603.
② Lim, J. W. Gov't launches new 'regional,' 'top-tier' visa program as part of immigration overhaul [EB/OL]. (2025-04-02) [2025-04-10]. https://koreajoongangdaily.joins.com/news/2025-04-02/national/socialAffairs/Govt-launches-new-regional-toptier-visa-programs-as-part-of-immigration-overhaul-/2276076.

under the *Residence Permit to Seek Employment after Studies in Sweden*—for a job seeker/start-up residence permit of up to 12 months. This permit requires no employer sponsorship but does oblige holders to maintain living funds at the same level as during their studies and to carry valid health insurance. Doctoral students receive a single residence permit of up to four years, and this entire period counts toward the qualifying years for permanent residence. Doctoral graduates who have accumulated four years of lawful residence and are economically self-supporting (within a rolling seven-year window, including their PhD period) may apply for permanent residence. By lengthening the post-study transition window, Sweden strengthens its pull-on research talent and closes the loop of "attracting, training and retaining" international students.①

Establishing a quality-controlled, tiered system for admitting high-skilled workers

For a broader pool of international professionals, Sweden has gradually built a three-tier system centered on quality control.

Tier 1: Since 2022 the *Job-Seeker / Start-Up Residence Permit* has allowed holders of a master's degree or higher to stay in Sweden for three to nine months without employer sponsorship to look for work or explore entrepreneurial opportunities. Applicants must show monthly maintenance funds of at least SEK 13,000 and hold medical insurance.②

Tier 2: From November 2023 the minimum salary for a standard work permit was unified at 80 per cent of Sweden's median wage—SEK 27,360 per month in 2023, SEK 28,480 in 2024 and projected to rise to SEK 29,680 in 2025—to curb wage dumping and raise the skill threshold for foreign labour.

Tier 3: Sweden has transposed the EU *Blue Card Directive* (2021/1883) into national law. From January 2025 the salary threshold for a Blue Card will fall to 1.25 times the average wage, and restrictions on changing employers and on family accompaniment will be relaxed, enhancing Sweden's appeal to top digital- and green-industry talent.③

① Residence Permit for Higher Education https://www.migrationsverket.se/en/you-want-to-apply/study/higher-education.html?utm.
② Look for work or start a business https://www.migrationsverket.se/en/you-want-to-apply/work/look-for-work/look-for-work-or-start-a-business.html?utm.
③ Inter-agency initiative to attract and retain international expertise https://www.government.se/press-releases/2024/03/inter-agency-initiative-to-attract-and-retain-international-expertise/.

For long-term status, holders of work permit who accumulate four years of lawful residence and are economically self-reliant may apply for permanent residence. In addition, a 2025 government inquiry recommends extending the normal residence period for citizenship from five to eight years and adding "good-conduct" and economic self-sufficiency checks, with implementation expected in 2026. Overall, Sweden combines a sponsor-free job-seeker channel, higher wage thresholds and stricter naturalization rules to build a tiered migration and talent-management regime that is both flexible in admission, rigorous in retention and prudent in integration—thereby underpinning the country's digital and green economic transition.

Japan

Alleviating Labor Shortages by Adjusting Work Visa Policies

In recent years, to address labor shortages, the Japanese government has made adjustments to work visa policies. Since April 2019, Japan introduced the "Specified Skilled Worker" (SSW) visa category to accept international workers with specialized skills. This visa does not impose strict educational requirements on applicants, thereby broadening employment opportunities in Japan.① To ease short-term shortages of low-level labor and avoid foreign workers occupying low-skilled jobs long-term, Japan signed memoranda of cooperation based on mutual benefit with 14 culturally similar Asian countries. This framework designates these 14 countries as core talent suppliers for the Specified Skilled Worker (SSW) visa and the Technical Intern Training Program (TITP). The SSW visa targets mid- to low-skilled workers who have completed vocational training and allows them to stay and work for a limited period. TITP helps workers from developing countries acquire specialized skills through training, and outstanding trainees may transition to the SSW visa.② This approach meets urgent industrial needs in Japan while cultivating technical talent in partner countries, achieving mutual empowerment.

① Study in Japan. Jobs and Careers in Japan [EB/OL].[2024-09-02]. https://www.studyinjapan.go.jp/en/work-in-japan/employment/status.html.
② Ministry of Foreign Affairs of Japan [MOFA]. What is the SSW? [EB/OL]. (2019-XX-XX) [2025-03-07]. https://www.mofa.go.jp/mofaj/ca/fna/ssw/us/overview/.

Strengthening the Attraction of Entrepreneurial, High-Skilled, and Strategic Sector Talent

In 2023, Japan launched the "Future Creation Individual Visa" (J-Find) and the "Special Highly Skilled Professional" (J-Skip), providing greater convenience and support for entrepreneurial and special high-skilled talents. In the same year, Japan implemented the Action Plan for Attracting Human and Financial Resources from Overseas, facilitating talent attraction in strategic sectors such as semiconductors.①

Emphasizing the Reserve of International Young Talent

Based on the 2023 "J-MIRAI Strategy," Japan set dual goals: to increase the number of international students from 280,000 to 400,000 by 2033 and to send 500,000 domestic students abroad for advanced studies. Specific measures include expanding English-taught degree programs, broadening university joint training programs, strengthening English education at the secondary school level, and improving Japanese language teaching networks for international students.

In February 2024, Japan launched a "National Strategic Special Zones" in Kitakyushu City, Fukuoka Prefecture, establishing a new employment mechanism for international students by relaxing residence status requirements for job seeking, making it easier for international students to find employment in Japan. Similar to Singapore's approach, the "Study in Japan Global Network Project," initiated in 2014, has established promotional bases worldwide to systematically promote the Japanese education brand. This coordinated "inbound + outbound" mechanism not only enhances the internationalization of domestic talent but also builds a global youth talent reserve.②

① 王辉耀,苗绿,郑金连.完善海外引进人才支持保障机制，赋能新质生产力发展[J].智库理论与实践,2024,9(05):24-30.

② The Government of Japan [JapanGov]. J-MIRAI – Japan-Mobility and Internationalization: Re-engaging and Accelerating Initiative for future generations [EB/OL]. (2023-04-27) [2025-03-07]. https://www.cas.go.jp/jp/seisaku/kyouikumirai/pdf/230427jmirai.pdf; Akimoto, D. Can Japan Boost Its Foreign Students Count to 400,000? [EB/OL]. (2024-05-16) [2025-03-07]. https://thediplomat.com/2024/05/can-japan-boosts-its-foreign-students-count-to-400000/.

China

Explore Establishing a High-tech Talent Immigration System

The National Medium- and Long-Term Plan for Human Resource Development (2010-2020) proposes to increase the introduction of foreign intelligence and to explore the implementation of skilled migration. Since the 18th National Congress of the Communist Party of China (CPC), the CPC and the State have attached great importance to the introduction of overseas talents; the level of services for the management of foreign talent projects has been continuously improved; the legal environment for the introduction of foreign talents has been continuously optimized; and significant progress has been made in reforming the foreign talent management system. In June 2016, China joined the International Organization for Migration (IOM) and officially became one of its member states. This is an inevitable choice for China to deepen its participation in global governance and international cooperation on migration. In March 2018, the National People's Congress (NPC) passed the State Council Institutional Reform Program and formally established the National Immigration Administration, marking the formal entry of China's immigration governance into a systematic development process. With the establishment of the National Immigration Administration and the continuous advancement of its governance practice, China's immigration governance has entered a systematic and professional development track, and international immigration governance has become an important starting point for China to deeply participate in global governance and enhance its international influence.

At the same time, the state and local governments are actively learning from international experience and exploring ways to attract overseas talents through the skilled immigration system. In February 2019, the Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area proposed that the Guangdong-Hong Kong-Macao Greater Bay Area should be early and pilot implementations in areas such as skilled migration and put forward initiatives on skilled migration such as the "List System for Shortage of Talents" and the "Criteria for Recognizing Foreign High-level Talents". In August 2020, the General Plan of China (Beijing) Pilot Free Trade Zone proposed to "pilot a quota management system for foreign talents". In 2021, the Outline of the 14th Five-Year Plan (2021-25) for Economic and Social Development and Long-

Range Objectives through the Year 2035 proposed to "explore ways to establish skilled migration system". At the same year, Shenzhen's Outline of 14th Five-Year Plan (2021-25) for Economic and Social Development and Long-Range Objectives through the Year 2035 proposed to "implement a more open and convenient system for the introduction and exit and entry administration of overseas talents and explore the implementation of a skilled migration policies". In that year, the Guangzhou Science and Technology Innovation Regulations came into force, and its Article 24 made it clear that "the Municipal People's Government shall promote the construction of internationalized special zones for talents and carry out the pilot project of skilled immigration", which is the first time that skilled immigration entered the local laws and regulations.[①] The Third Plenary Session of the 20th Central Committee of the Communist Party of China proposed exploring the establishment of a high-tech talent immigration system, further improving the support and guarantee mechanisms for overseas talent introduction and striving to form a talent system with international competitiveness.

Continuously Expanding Opening-up and Visa-free Access

China has been steadily increasing its openness to international talent. The pattern of attracting and utilizing talent has further developed from "pleasing those nearby and attracting those far away," gradually transforming China from the world's largest talent outflow country into a major talent inflow country. China is becoming a global hub for innovation talent aggregation, integration of innovation elements, and vibrant innovation activities.[②]

The National Immigration Administration has been continuously advancing institutional openness in immigration management, optimizing policies to facilitate entry and exit, and improving convenience for foreigners traveling and living in China. As of June 2025, China's 240-hour visa-free transit policy applies to 55 countries. Holders of valid international travel documents and confirmed onward tickets with dates and seats to a third country or region can enter visa-free through any of the 60

① Huiyao Wang, Lu Miao, and Jinlian Zheng, "完善海外引进人才支持保障机制，赋能新质生产力发展 [Improving Support Mechanisms for Overseas Talent Introduction to Empower the Development of New-Quality Productivity]," *智库理论与实践* (*Think Tank Theory & Practice*) 9, no. 5 (2024): 24–30.
②丁小溪, 范思翔, 张研, "聚人才之力 筑复兴之基——新时代人才事业发展成就综述 [Gathering Talent to Lay the Foundation for National Rejuvenation: An Overview of Achievements in Talent Development in the New Era]," 新华网 (Xinhua News Agency), 21 August 2022, http://www.news.cn/politics/2022-08/21/c_1128933335.htm (accessed 25 June 2025).

open ports across 24 provinces (autonomous regions and municipalities) such as Beijing and Shanghai and stay within designated areas for no more than 10 days. During the stay, they may engage in tourism, business, visits, and family reunions.

Meanwhile, China continues to optimize its entry policies and expand the scope of visa-free countries, allowing more foreign friends to experience higher-quality product offerings, more diverse consumption scenarios, and more convenient service guarantees. This is done through broader opening-up and deeper cooperation to share prosperity with countries worldwide. As of June 9, 2025, China's unilateral visa-free "circle of friends" has expanded to 47 countries. Holders of ordinary passports from these countries can enter China visa-free for up to 30 days for business, tourism, visiting relatives and friends, exchanges, and transit. The ever-growing visa-free list demonstrates China's firm commitment to advancing a high-level opening-up policy.

Promoting the Integrated Development of Education, Science & Technology, and Talent

In June 2020, the Opinions by eight government bodies including the Ministry of Education on accelerating and expanding the opening-up of education in the new era further proposed: "Enhance the international competitiveness of China's higher education talent training, accelerate the cultivation of high-level international talents with a global vision… improve the openness of basic education, and cultivate a new generation of youth with all-round development in morality, intelligence, physique, aesthetics, and labor, and with an international perspective."①

In September 2021, the central conference on talent-related work proposed: "Cultivate a reserve force of young scientific and technological talents with international competitiveness… increase openness to talent… strengthen international talent exchanges in line with the new situation… talent openness is two-way, not only bringing in talent but also sending talent out. Multiple approaches should be taken to open new channels for talent to go abroad for training, diversify talent training channels, and reserve more talent."

Report to the 20th National Congress of the Communist Party of China pointed

① 张烁, "教育部等八部门印发意见，加快和扩大新时代教育对外开放 [The Ministry of Education and Seven Other Departments Issue Guidelines to Accelerate and Broaden the Opening Up of Education in the New Era]," *人民日报* (*People's Daily*), 23 June 2020, p. 16.

out: “Education, science and technology, and human resources are the foundational and strategic pillars for building a modern socialist country in all respects. We must regard science and technology as our primary productive force, talent as our primary resource, and innovation as our primary driver of growth. We will fully implement the strategy for invigorating China through science and education, the workforce development strategy, and the innovation-driven development strategy. We will open up new areas and new arenas in development and steadily foster new growth drivers and new strengths.” At the same time, it emphasized pursuing a more proactive strategy of opening up, advancing a broader agenda of opening up across more areas and in greater depth; adopting more proactive, open, and effective talent policies; cultivating first-class innovators and attracting the brightest minds from around the world; improving the strategic distribution of human resources; and striving to build comparative strengths in the global competition for talent.

The Third Plenary Session of the 20th CPC Central Committee adopted the Resolution of the Central Committee of the Communist Party of China on Further Deepening Reform Comprehensively to Advance Chinese Modernization, which proposed making coordinated efforts to promote integrated reform of institutions and mechanisms pertaining to education, science and technology, and talent. Talent policies will become more proactive, open, and effective. To improve the mechanisms for nurturing talent here at home, efforts will be accelerated to develop national hubs for high-caliber personnel and platforms for attracting and pooling talent. Additionally, support mechanisms for recruiting overseas talent will be improved to create internationally competitive personnel systems.

In 2025, the Central Committee of the Communist Party of China and the State Council issued the 2024-2035 Master Plan on Building China into a Leading Country in Education, which proposed improving the strategy of opening-up in education, enhancing the global talent training and gathering capacity, expanding international academic exchanges and educational scientific research cooperation, and actively participating in global education governance.

Germany

The Skilled Immigration Act Loosens Immigration Restrictions for Non-EU Skilled Workers

Germany's Skilled Immigration Act came into effect in early 2020. The law aims to relax immigration restrictions for skilled workers from non-EU countries, introducing eligible foreign workers to address labor shortages in relevant industries. It is expected to bring 25,000 professionals and technical talents to Germany annually. The law expands the opportunities for qualified skilled workers to work in Germany, especially making it easier for technical workers from non-EU countries who have completed professional, non-academic training to work in Germany. The eligibility criteria for qualified professionals have been relaxed to include those who have completed at least two years of training and hold either a college degree or vocational qualification. Entering the labor market is also easier: as long as the applicant has an employment contract or a specific job offer and holds qualifications recognized in Germany, they can apply and work in their qualified related profession.[①] Those who secure a job contract or employment invitation can apply for a residence permit valid for four years or for the duration of the employment contract. After four years, applicants may apply for permanent residence in Germany. The law also establishes a "fast-track" immigration channel for urgently needed professionals in special sectors, such as doctors and registered nurses. These professionals do not need to apply for professional qualification recognition in Germany but only need to prove at least five years of work experience in the relevant industry to apply for immigration. Non-EU nationals who have not yet secured a job but possess basic German language skills and can support themselves financially have the right to stay in Germany for six months to seek employment, regardless of their skill level.[②]

① The Federal Government. https://www.make-it-in-germany.com/en/visa/kinds-of-visa/work/skilled-immigration-act/.
② Fachkräfteeinwanderungsgesetz vom 15. August 2019.[2022-10-10]. https://fachkraefteeinwanderungsgesetz.de/gesetzestext/.

Continuous Relaxation of Requirements for Skilled Workers Entering the German Labor Market

In 2023 and 2024, the German government made several significant amendments to the Skilled Immigration Act, further expanding the policy's specific measures and scope of application. Since October 18, 2023, a new version of the "EU Blue Card" was introduced, and the limitation on the duration of labor contracts for workers from the Western Balkans was removed. According to the "work experience regulation," the requirements for professional qualifications or academic diplomas for IT professionals were relaxed; as long as they have two years of relevant work experience, they can enter the German labor market directly without needing professional or academic certification in Germany. Starting March 1, 2024, Germany extended the "work experience regulation," which originally applied only to IT professionals, to all foreign workers except those in regulated professions.

Chapter 4: Global Talent Flow Governance: Suggestions for Improvement

The Role of International Organizations in Global Talent Flows

Talent Flow Governance in International Organizations

International organizations play a pivotal role in the governance of talent mobility. By supplying both epistemic and material public goods, they facilitate collaboration among states, non-state actors, and the private sector, thereby fostering global partnership frameworks for talent governance. Leveraging the openness of their platforms and their specialized expertise, these bodies can address concrete challenges associated with cross-border talent flows. The leading organizations currently engaged in this domain include the United Nations, the World Bank, the International Labor Organization, the International Organization for Migration, and the Centre for Global Development on Migration and Development, among others.

The United Nations

Founded in 1945, the United Nations has made two major contributions to international migration governance. Firstly, it established a normative framework for international migration composed of international conventions to protect the rights of international migrants in terms of human rights, employment, and social service. Secondly, United Nations agencies, UN specialized agencies, and other international bodies, including the International Labour Organization, Immigration Agency (International Organization for Migration), the United Nations High Commissioner for Refugees, the Human Rights Council, the World Bank, the World Trade Organization, the World Health Organization, etc., all attach great importance to international immigrants within the scope of their respective functions and powers, forming the institutional framework of United Nations system to cope with the global immigration.

International Labour Organization

The International Labour Organization (ILO), headquartered in Geneva, is a

specialized United Nations agency dealing with labor issues related to international labor standards. The ILO was established as an affiliate of the League of Nations in 1919 under the Treaty of Versailles and in 1946 became the first specialized body under the United Nations. Its purpose is to promote full employment and higher living standards, promote industrial cooperation, improve working conditions, expand social security, ensure the occupational safety and health of workers, achieve lasting peace in the world and to uphold social justice. In terms of the flow of human resources, the ILO has made three major contributions. First, it has established minimum standards for protecting the rights and interests of migrant workers through agreements and conventions. Second, it has carried out research and practice in the field of labor migration, and has provided information consultation, training, and technical assistance to member states; Third, it has built a platform to promote dialogue and cooperation on international migration governance. The International Labour Organization (ILO) launched the Fair Recruitment Initiative in 2014 and started its second phase in 2021 to improve fair recruitment by strengthening, communicating and disseminating relevant national and international recruitment processes, and reforming relative laws and policies, and at the same time to ensure effective supervision on cross-border recruitment and prevent human trafficking and forced labor by promoting fair business practices, empowering and protecting workers' rights. In addition to building a platform for dialogue, the ILO is also implementing concrete projects to strengthen the capacity of member states in governing international labor migration. For example, in order to help labor immigrants in the International Labor Corridor of South and Southeast Asia, the ILO implemented the Governance of Labour Migration in South and South-East Asia (GOALS) project in Pakistan for a period of three years (2020-2023). To improve the overall governance of labor migration at regional and national levels in South and South-East Asia, the ILO reformed the Bilateral Labour Agreement (BLA), supported the local government in developing the South Asian qualifications reference framework and promoted the introduction of a national skills passport in Pakistan. In November 2023, the International Labour Organization (ILO) launched the Global Coalition for Social Justice, bringing together over 300 partner entities to accelerate progress aligned with the Sustainable Development Goals (SDGs). The initiative focuses on addressing inequality, labor rights, and decent work, with a particular emphasis on challenges such as extreme poverty, child labor, youth unemployment, and informal employment. It applies an evolutionary strategy—

strengthening advocacy, policy coordination, knowledge production, and resource mobilization—to establish an organic link between social justice and decent work objectives while continuously refining the services provided.

During the same month, the ILO adopted the Just Transition Strategy and Action Plan, which aims to ensure fairness and inclusion as the world transitions towards an environmentally sustainable economy. The plan entails policy coordination, social dialogue, skills training, and social protection measures aimed at mitigating adverse effects on vulnerable groups. It commits the ILO to furnish technical assistance, data, and cooperative mechanisms—especially for least-developed and climate-vulnerable countries—to facilitate an orderly and equitable green transition.

Subsequently, on 1 December 2024, the ILO introduced a four-year transnational development-cooperation initiative entitled STEAM – "Extending Social Protection to Migrant Workers and Their Families in the South Asia–Gulf Corridor." Building on pilot activities conducted between 2021 and 2024, the project seeks to expand inclusive, gender-responsive, and rights-based social-protection coverage across ten countries: Bangladesh, Nepal, Sri Lanka, and India in South Asia, together with the Gulf Cooperation Council (GCC) member states of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. By operating in a corridor where migrant labor accounts for roughly 75 to 95 percent of the workforce, STEAM aims to create a pathway toward comprehensive social protection for migrant workers and their families. In November 2023, the International Lar Organization (ILO) launched the Global Coalition for Social Justice, bringing together over 300 partner entities to accelerate progress aligned with the Sustainable Development Goals (SDGs). The initiative focuses on addressing inequality, labor rights, and decent work, with a particular emphasis on challenges such as extreme poverty, child labor, youth unemployment, and informal employment. It applies an evolutionary strategy—strengthening advocacy, policy coordination, knowledge production, and resource mobilization—to establish an organic link between social justice and decent work objectives while continuously refining the services provided.

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① International Labour Organization. Resolution concerning a just transition towards environmentally sustainable economies and societies for all. [2023-6-16]. https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@ed_norm/@relconf/documents/meetingdocument/wcms_886647.pdf

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International Organization for Migration

The International Organization for Migration (IOM), formerly known as the Intergovernmental Committee for European Migration (ICEM), changed its name in 1989 and is headquartered in Geneva, Switzerland. In 2016, the International Organization for Migration formally became part of the United Nations system. The International Organization for Migration regularly publishes the World Migration Report, which studies the current situation of international migration as well as key issues and has become the most comprehensive and authoritative report on international migration. The IOM mainly conducts migration governance in four areas: migration and development, promotion, regulation, and forced migration. Its categories of migration governance can be divided into five areas. First, implementing a plan for migration transport. Second, providing health and medical services for migrants. Third, building national immigration governance capacity. Fourth, paying attention to female immigrants. Fifth, implementing return and integration programs for highly skilled migrants to support economic and social development in developing countries.

As one of the key international organizations in solving problems in international migration, the IOM has continuously carried out many activities in the specific field of

① International Labour Organization STEAM（https://www.ilo.org/projects-and-partnerships/projects/stream-extending-social-protection-migrant-workers-and-their-families-south#:~:text=Extending%20Social%20Protection%20to%20migrant,Dialogue%20in%20the%20Gulf）

global talent flow in recent years, highlighting its role as an actor in global governance.

One step that the IOM made was to promote the Global Compact for Safe, Orderly, and Regular Migration, adopted by the UN General Assembly in 2018. This compact aims to support international cooperation in the governance of international migration so that the United Nations and other stakeholders can introduce policies for integrating migrants into local communities and reduce the fragmentation between migrant groups and local communities.

The second step is to help migrants cope with large-scale infectious diseases. In 2021, the IOM adopted a new COVID-19 Strategic Response and Recovery Plan, which targeted four strategic objectives: service continuity, public health measures, COVID-19 impact, and ease of information, in order to reduce the impact of COVID-19 on migrants' work and life.

Third, the IOM has tried to build a global policy network. In December 2020, the global policy network was launched to provide clear guidance on the use of migrant workers. It can also reduce the risks faced by migrant workers in cross-border recruitment, encourage the formation of cooperation mechanisms between jurisdictions, and promote countries to build a safe and orderly labor migration order. In 2024, the International Organization for Migration (IOM), working in partnership with academic institutions, private-sector actors, and migrant workers, launched the IOM Innovation Facility—a global platform designed to stimulate collaboration and develop transformative solutions for migration. The Facility supplies seed funding, training, and partnership-building opportunities to support projects that are both scalable and high-impact. During its first call for proposals, 130 concepts were submitted from 70 IOM countries and field offices worldwide. Following a rigorous two-stage review process, twelve outstanding projects were selected. The successful teams receive tailored support, including topic-specific training and one-on-one coaching.

Fourth, the IOM unites government, civil society, and the private sector to create a flagship program, Ethical Recruitment for Migrant Workers. This project establishes ethical recruitment practices by raising awareness and capacity, giving a voice and empowerment to migrant workers, establishing regulatory mechanisms in line with international standards, voluntary certification of private recruitment agencies, and enhancing stakeholder dialogue. On July 30, 2021, the IOM launched a partnership with the Sustainable Hospitality Alliance to address unethical recruitment by combating the exploitation of migrant workers and banning forced labor. Another example is the

International Organization for Migration (IOM) initiative launched in March 2023: GenMig – the Gender and Migration Research, Policy and Action Lab. Conceived as a multi-stakeholder platform, GenMig aims to promote innovative, gender-responsive policies, operations, programs, and practices throughout the migration field. The project is distinguished by a high level of collaboration, bringing together a global network of research institutions, national governments, UN entities, and other intergovernmental organizations, as well as non-governmental organizations and private-sector actors, all committed to advancing gender equality.

Fifth, labor mobility policies and development models are being explored through cooperation with regional governments. In February 2025, Talent Beyond Boundaries (TBB) and the International Organization for Migration (IOM) jointly launched a two-year initiative, funded by Immigration, Refugees and Citizenship Canada (IRCC), entitled "Building Ecosystem Capacity to Scale Labour-Mobility Pathways." The project seeks to expand safe, regular, and skills-oriented migration opportunities for migrants and refugees in Latin America and the Caribbean, thereby reducing dependence on smugglers and curbing exploitative practices. It supports candidates by offering training in English, soft skills, interview preparation, and sector-specific knowledge, and it commits to documenting lessons learned throughout the implementation process. The resulting evidence will be shared with regional governments and the Global Refugee Labour Mobility Task Force in order to promote more inclusive and replicable models of international labor mobility.

Other International Organizations

There are also other intergovernmental organizations that are widely involved in global migration governance. Since 2006, the World Bank has been issuing Migration and Development Reports two to three times annually, which provide in-depth analyses on international migrant remittances, migration of highly skilled workers, determinants of migration, short-term migration of population, social protection and management, trade, and the relationship between foreign direct investment and migration. From the perspective of global economics, it analyzes the effect and influence of international migration from both the macro and micro levels. It reveals the positive contribution of international migration and remittance to the global economy. The Organization for Economic Co-operation and Development (OECD) maintains a relatively comprehensive migration database and issues in-depth migration research reports, providing research materials and policy-making resources for immigration researchers

and immigration policymakers. In June 2023, the Organization for Economic Co-operation and Development (OECD) unveiled its Digital Skills Strategy, aimed at strengthening the digital capabilities of unemployed individuals while helping local labor markets meet the growing demand for such competencies. The strategy follows a two-pronged approach. First, it boosts foundational digital literacy by delivering workshops and training courses through public employment centers. Second, it runs pilot projects in collaboration with local businesses and institutions to assess the effectiveness of innovative training formats, including online modules, gamified learning, and structured internships.

Copenhagen serves as the initial implementation site, where the OECD works with corporate partners—among them Microsoft—to tailor upskilling programs to the concrete needs of both employers and job seekers. By aligning training content with real-world demand and rigorously testing novel pedagogical methods, the initiative seeks not only to enhance individuals' employability but also to create an evidence base for scaling effective digital-skills interventions in other regions.

In addition, the World Trade Organization and International Red Cross also contribute to migration management. In the Doha Round of WTO negotiations in 2001, trade in services became a subject of discussion, and the global mobility of people is the service provider, which means that the WTO also began to participate in the governance of migration issues, especially migrant workers. The WTO has always been an important participant in international forums like the Global Forum of Migration and Development. At the same time, the International Committee of the Red Cross has focused on illegal immigration and refugees. In 2023, the World Trade Organization (WTO) and the World Bank jointly launched the Services Trade for Development Initiative. Designed to help developing economies deepen their participation in global services trade—particularly under Mode 4 of the General Agreement on Trade in Services, which covers the temporary movement of natural persons—the initiative combines technical assistance, policy advice, and peer-learning activities. Its primary objective is to assist governments in dismantling domestic regulatory barriers while linking an expanded services-trade agenda to broader national development priorities.

The International Red Cross and Red Crescent Movement has increasingly focused on the protection and assistance needs of irregular migrants and refugees. In 2024, the movement adopted the Migration Strategy 2024–2030, its first unified framework for action in this domain. The document articulates a shared vision, a set of

goals, and common commitments for the movement's three components—the National Societies, the International Federation of Red Cross, and Red Crescent Societies (IFRC), and the International Committee of the Red Cross (ICRC). By clarifying these responsibilities and priorities, the strategy provides external partners, donors, and other stakeholders with clear avenues for collaboration and a deeper understanding of the movement's stance and planned interventions on migration-related issues.

Governance of Global Talent Flows in Regional Cooperation Organizations

The United Nations and its specialized agencies constitute global international organizations. This status enables them to participate in international migration governance with comparatively less direct constraint from national interests, allowing them to focus on enhancing the well-being of migrants. In a concrete implementation, however, the effectiveness of migration-related solutions often depends on the policies and attitudes of the states directly involved—namely, countries of origin, transit, and destination—which typically regard the protection of their national interests as a primary consideration. By comparison, regional cooperation mechanisms are better positioned to accommodate such divergences; they can reconcile the interests of the states concerned while facilitating mutually beneficial, region-specific solutions and, in turn, foster sustainable governance pathways.

European Commission. The commission's Department of Migration and Home Affairs is responsible for managing the international movement of talent, which is currently one of the Commission's 10 Priorities. The EU attaches great importance to the issue of international migration and guarantees the free movement and security of people is also one of the fundamental purposes of the EU. Through the Treaty on European Union, the Amsterdam Treaty, the Treaty of Nice, and the Treaty of Lisbon, the EU legally allows migrants who live or hold work visas in EU member states to have the right of free movement within the EU. In 2023, taking advantage of the "European Year of Skills," the European Commission introduced the Skills and Talent Mobility Package, which envisages the creation of an EU Talent Pool and the revision of the EU Blue Card Directive, thereby establishing a unified legal framework for highly skilled migrants. In 2024, the Commission issued the Action Plan on Tackling Labour and Skills Shortages, secured Council approval of the "Europe on the Move"

recommendation on learning mobility, and reached a general approach on the Talent Pool regulation; in the same year, it also launched the ERA Talents scheme under the Horizon Europe program to strengthen cross-sectoral mobility and cooperation among researchers. In 2025, the Commission announced the "Choose Europe for Science" package, accompanied by a pilot under the Marie Skłodowska-Curie Actions (MSCA) Postdoctoral Fellowships, while continuing legislative negotiations on the Talent Pool. Taken together, these measures have gradually built an integrated policy architecture that spans education, employment, and research.

Association of Southeast Asian Nations.

The Association of Southeast Asian Nations (ASEAN) has played an important role in immigration governance in the Asia-Pacific region. The practice of the ASEAN in the international flow of human resources mainly focuses on the governance of migrant labor. In 2007, the ASEAN Declaration on the Protection and Promotion of the Rights of Labour Migrants, also known as the Cebu Declaration, was adopted at the 12th ASEAN Leaders' Meeting, and recognizes the contribution of migrant workers to ASEAN member states. It takes measures to protect the rights of migrant workers, prevent abuse and human trafficking and demonstrate ASEAN's commitment to the governance of migrant workers. In 2008, to oversee the implementation of the Declaration, ASEAN established the ASEAN Committee on the Implementation of the ASEAN Declaration on the Protection and Promotion of the Rights of Migrant Workers (ACMW). ACMW has developed a series of projects and activities, covering the safe migration of migrants, combating human trafficking and other aspects, so as to effectively improve the relevant understanding and policy implementation ability of ASEAN governments to protect and promote the rights of migrant workers. So far, ACMW has held the ASEAN Forum on Migrant Labour (AFML) every year since 2008 and has held 14 sessions until 2021. It successfully establishes an open platform that discusses the issues faced by governments, trade unions, employers, and stakeholders in the international labor sector and effectively promotes the work process related to labor governance in ASEAN. In 2023, the ASEAN Summit in Jakarta adopted the Declaration on Promoting Competitiveness, Resilience, and Agility of Workers for the Future of Work, along with its Guidance Document, establishing a common governance framework for Member States that coordinates skills standards, lifelong learning, and digital skills enhancement. In the same year, the ASEAN Coordinating Committee on Micro, Small, and Medium Enterprises facilitated the rollout of Go Digital ASEAN 2,

which offers market-oriented digital literacy and cyber-security training to SMEs and vulnerable groups, thereby strengthening grassroots up-skilling channels. At the technological level, the ASEAN Guide on AI Governance and Ethics was also released, setting transparent, fair, and human-centered principles for regional AI R&D and application and identifying education and vocational training as critical implementation levers.

During Laos's 2024 chairmanship, the "double summit" adopted the Vientiane Declaration on Skills Mobility, Recognition and Development for Migrant Workers, reaching consensus on the integration of skills certification into labour-migration policies and on advancing mutual recognition, thus providing institutional safeguards for cross-border talent mobility. The Asia-Pacific Digital Talent Summit held in Nanning the same year further underscored the importance of AI-related core skills and, through public-private partnerships, expanded regional training and mobility mechanisms. Taken together, ASEAN has developed complementary policy instruments in three areas—skills standardization, digital and AI training, and cross-border mobility with mutual recognition—thereby progressively building an integrated regional talent-development architecture.

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Major Issues in the Governance of Global Talent Flows

Current global governance arrangements have limitations in addressing the

intensifying competition for international talent. Regulatory gaps in cross-border mobility could, over time, lead to ruinous competition and the inefficient deployment of human capital, thereby undermining sustainable development. In broad terms, at least five structural challenges or blind spots can be identified.

First, against the backdrop of deepening globalization, international production networks and cross-cultural teamwork are becoming the norm, and diverse talent pools are widely recognized as a catalyst for innovation. Yet, the scholarly and policy communities devote comparatively little attention to the cooperative dimension of talent mobility, and no global consensus has emerged on the value of talent collaboration. In practice, competition and cooperation are two sides of the same coin; viewed from the standpoint of collective human development, cooperation is indispensable for optimizing talent allocation and advancing shared progress.

Second, the world lacks an institutionalized platform for systematic dialogue and coordination on talent policies. Pronounced cross-national differences in visa regimes, professional qualification recognition, and labor-market regulation require regular, structured engagement. Although mechanisms exist within the European Union, ASEAN, and the EU–China "People-to-People Dialogue," they remain primarily regional in scope, relatively fragile, and centered on inter-governmental interaction, with limited participation from enterprises, industry associations, and other societal stakeholders.

Third, significant data gaps persist. Even as the scale of cross-border mobility continues to expand, reliable statistics on the volume, structure, and characteristics of talent flows are scarce, constraining evidence-based policymaking and rigorous academic analysis. The rise of professional networking platforms has opened up new possibilities for large-scale data collection; however, the commercial nature of these platforms imposes privacy and proprietary constraints on data use.

Fourth, the spread of artificial intelligence and digitalization has created "algorithmic barriers" and intensified claims to data sovereignty, objectively reinforcing imbalances in talent flows. The concentration of computing power, data resources, and advanced platforms in a handful of technology hubs attracts talent to those centers. At the same time, stricter data-localization rules and reviews of cross-border data transfers limit the interoperability of global talent databases, weakening the timely measurement of supply-demand gaps.

Fifth, a structural mismatch exists between talent development systems and the

skills demanded by emerging sectors. Many education and training frameworks still rely on static disciplinary boundaries and qualification hierarchies, failing to adapt quickly to cross-disciplinary competencies required in fields such as AI and the green transition. Slow progress on mutual recognition of qualifications and lifelong learning credit accumulation further widens the divide between talent supply and labor market needs, leading to the potential underutilization of high-skill workers and dampening global innovation capacity.

The substantial contribution of cross-border talent mobility to the world economy is beyond dispute. Nevertheless, compared with international trade or financial regulation, global governance pays relatively little attention to the movement of talent. International migration—especially of highly skilled individuals—has propelled technological progress, but it also poses new challenges for the global governance architecture.

The Alliance of Global Talent Organizations: An Innovative Response to International Governance of Global Talent Flow

While there has been significant progress in both theoretical work and practical application regarding global talent flow and its governance, the focus of the world's established international organizations on immigration, such as the International Organization for Migration (IOM) and the International Labour Organization (ILO), has not been on talent, with the former focusing on refugee issues and the latter on the protection of workers' rights. While the new era has seen an increasing number of transnationally mobile talent, which has become an important group for immigrants. However, many existing challenges still impede global talent mobility, limiting the potential contribution that these talent resources could make toward economic and social prospects. This points to the need for an international organization to facilitate discussion and address a range of crucial issues, including how to better leverage the role of globally mobile talent, how to ensure and regulate reasonable talent mobility, and how to balance the interests of sending and receiving countries and find ways to resolve current and future problems.

The Purpose of the Alliance of Global Talent Organizations

Alliance of Global Talent Organizations is committed to promoting international talent mobility, strengthening extensive talent exchanges and cooperation, providing basic protections for talent, actionable service intelligence for developing countries, and reinforcing talent cooperation in key fields with developed countries, thereby improving the facilitation of talent mobility and promoting talent cultivation. Specifically, AGTO has the following goals: ①

The first goal is to create an environment of fair competition for dialogue in international talent exchanges, which includes promoting and supporting conversations related to regional and global talent, improving understanding of the opportunities and challenges in international talent exchanges, recognizing, and developing effective policy measures, and identifying comprehensive methodologies and measures that can support international cooperation.

The second goal is to improve the welfare of people around the world and encourage the international sharing of talent. Constrained by the level of economic and social development, current international talent resources vary greatly between countries. This requires the establishment of talent sharing and exchange platforms, in which governments, non-governmental organizations, other stakeholders, and talent themselves could receive professional and technical support on improving human capital.

The third goal is to protect the legal rights and interests of international talent. Under the principles of fairness, equality, and justification, AGTO is committed to actively guiding and regulating the legal rights and interests of international talent and defending the basic rights and claims of talent.

How the Alliance of Global Talent Organizations Works②

As a platform for international talent exchange and cooperation, the Alliance of Global Talent Organizations is committed to forming a series of cooperation

① Wang, Huiyao, and Alistair Michie, editors. Consensus or Conflict? China and Globalization in the 21st Century. Springer, 2021:201.
② Part of this section is from Huiyao, Wang. Lv, Miao. Jinlian, Zheng. Introduction to International Talent Studies. [M]. Beijing: China Labor Society Security Publishing House. 2020:24.

mechanisms, building platforms, gathering information, serving the development and cooperation of talent, and making contributions to effectively guiding international talent exchange, mobility, employment, certification, and residence. There are four main aspects of how the Alliance works:

Reaching Consensus. The organization is committed to talent mobility governance and promoting the international community to reach a general consensus on expanding international talent exchange and talent cooperation for mutual benefits.

Mechanism building. The organization is committed to building a mechanism for dialogue, coordination, and cooperation of global talent. First, convene a Global Talent Summit to examine all facets of international talent cooperation and development. Second, to promote mutual recognition of academic qualifications and professional qualification certification, to serve the global development of talent. Third, through the development of the service mechanism, especially the collecting and sharing of information, the organization will evaluate and guide the talent policies as well as the development of talent in each country and region, promoting the orderly flow of talent.

Platform building. Firstly, as an information platform, the organization can play the role of an official website and media platform to collect information on talent supply and demand and release crucial guidance about talent development. Secondly, as an academic platform, it releases annual reports on world talent and industries. Thirdly, as a data platform, it helps to build a database of world talent resources, statistics and service evaluation. Fourthly, as an event platform, it forms a talent community and holds annual meetings, forums, and other activities. Fifthly, as a cooperation platform, it strengthens the communication and cooperation among members, cities and countries about the development and flow of talent. Finally, as a training platform, it carries out training programs related to talent development to improve the level of talent management and the talent service capacity of governments and institutions.

Information integration. Using big data, AGTO establishes an information base for global talent flows and provides data support for the overall concepts, approaches and methods of global talent governance based on the basis of information analysis.

Practical Experiences of the Alliance of Global Talent Organizations

Since 2016, the Center for China and Globalization (CCG) has conducted in-depth

research on the Alliance of Global Talent Organizations (AGTO) initiative, organized several expert debates in Beijing, Hong Kong, Washington, and Paris, and presented AGTO on global platforms such as Paris Peace Forum and the Economic Cooperation Organization (ECO) Conference, to continuously push this alliance from concept to implementation. CCG has held several online seminars on global talent flow since the outbreak of the pandemic, inviting university presidents, the president of the International Labour Organization (ILO), representatives of the United Nations International Organization for Migration (IOM), the president of the Association of Executive Search Consultants (AESC), and representatives of human resource companies to discuss the governance and cooperation of global talent mobility. At the third Paris Peace Forum, in November 2020, the Alliance of Global Talent Organizations (AGTO) was inaugurated. Since its inception, the association has organized the online series "Global Talent Mobility in the Pandemic Era." In 2023, it hosted the Global Talent Summit in Macao, at which the report Asian Talent Development in the Age of Technological Transformation 2023 was released. The association also convened the Global Talent Mobility and Development Forum at the main venue of the Hongqiao Forum during the China International Import Expo in Shanghai, issuing the Global Talent Mobility Trends and Development Report (2022).

In May 2024, a parallel session on "Global Talent Mobility and Governance" was held during the 10th China and Globalization Forum, where the International Talent Mobility and Governance Report—Analysis with the United States as a Hub 2024 was launched. Earlier, in January 2024, the association partnered with the International Organization for Migration's China Office to hold an International Migrants Day seminar on "Talent Mobility and Integration."

Suggestions on Promoting an Orderly Flow of Global Talent

Fully Understand the Significance of Talent Flows

The universal aspiration for a better life continues to propel the cross-border and cross-sector mobility of talent. Such mobility injects diverse resources into national economic and social development, energizes scientific and technological innovation,

and intensifies global competition for international talent. Although the current international landscape is complex and fluid, migration flows have not been impeded. Against this backdrop, facilitating the sustained movement of migrant professionals, international students, and other mobile talent—while establishing multifaceted mechanisms for international exchange and cooperation—holds significant value for enhancing mutual understanding, fostering connections, broadening areas of consensus, and advancing high-quality development.

Promote High-level Opening-up to Facilitate Talent Flows

Against the backdrop of profound global transformations, openness has become the defining theme of our era. As a core element of openness, the free and full development of talent depends on an increasingly open international environment. Empirically, greater openness correlates positively with comprehensive national strength and economic resilience while also serving as an effective means of dismantling mobility barriers and fostering mutual understanding. China has consistently pursued a proactive strategy of opening to the global and is expanding the scope of that openness. Promoting high-level external openness will create more flexible and convenient conditions for talent flows. Embedding an open mindset in the reform of talent-mobility institutions, deepening substantive exchanges and cooperation, and broadening the radius of mutual trust are foundational steps toward an orderly global talent-mobility framework.

Expand the Talent Exchange and Dialogue through the China International Import Expo

The coexistence of international competition and cooperation in the talent arena necessitates a standardized, institutionalized dialogue architecture that spans multiple levels. By establishing dedicated forums—such as a Global Talent Summit—stakeholders can build a standing dialogue mechanism, facilitate cross-border exchanges, and achieve the principles of co-consultation, co-construction, and shared benefits. A summit organized around the theme of “Strengthening International Talent Cooperation” would focus on policy coordination for cross-border mobility, optimization of the business climate, and innovation in people-to-people exchange

mechanisms. Such a multilateral platform could align policies, pool resources, and support the development of global talent hubs. Through broad participation, evidence-based decision-making, and open data, these platforms can more effectively harmonize international talent policies and foster a fair, synergistic, and inclusive global mobility ecosystem.

Diversification and Digitization of Talent Mobility Governance Platforms

From a regional perspective, global talent flows are shifting from a traditional concentration in developed economies toward increasingly diversified routes, including flows from the global north to the global south. Sectorally, the digital economy is reshaping work modalities, accelerating digital transformation and cross-sector mobility of talent. Cross-regional flows engage the interests of multiple nations and thus require governance mechanisms that reflect the preferences of the majority. Cross-sector flows, meanwhile, necessitate adaptive governance innovations. First, given the multiplicity of actors and fields involved, governance platforms should emphasize fairness and broaden stakeholder participation. Second, rule-making assumes greater importance: the absence of harmonized rules can lead to disorderly competition and exacerbate inequalities in talent flows. Third, the digital capabilities of governance instruments must be enhanced—for example, by improving digital infrastructure connectivity and digitizing public services to facilitate the local integration of international talent and increase national attractiveness.

Building a Data-Driven Global System for Skills Recognition and Talent-Mobility Governance

To mitigate the structural mismatch between talent cultivation and emerging skill demands, a systematic approach spanning supply–demand monitoring, qualification recognition, and digital governance is required. First, a global skills observatory mechanism should be established under the auspices of multilateral organizations and industry platforms, producing real-time assessments of shortages in areas such as

artificial intelligence and the green economy and thereby informing education, training, and migration policies. Second, building on existing qualification-recognition frameworks, cross-border portability, and the flexible stacking of modular micro-credentials and accumulated credits should be promoted, with direct links to high-skill visas and professional licensing standards, thereby shortening the time between learning and labor-market entry. Third, a multilateral funding facility for skill development could be explored to support digital infrastructure and online training in lower-income economies, contributing to a more balanced global talent supply. Parallel efforts could digitize records of learning, internships, and employment, embedding them in qualification review and visa processes to enhance transparency and regulatory efficiency. By integrating data-driven forecasting, modular learning, inclusive financing, and digital credentialing, the talent development system can become more responsive to technological change while providing a fairer, more coordinated, and more inclusive institutional environment for cross regional and cross-sector talent mobility.

Appendix 1: Theories and Models Related to Global Talent Competitiveness

An Overview of Theories and Evaluations of National Competitiveness[①]

Competitiveness is a very complex socio-economic phenomenon, which can be examined at different levels and from different perspectives under various hypothetical conditions. Competitiveness-related research can be carried out in fields including economics, management, talent studies and all their sub-disciplines. However, due to different assumptions and analytical tools, the elements of competitiveness that are of interest also differ, thus forming different schools of thought in competitiveness research.

National Competitiveness Theories

Competitiveness Theories around the World

Professor Michael E. Porter of the Harvard Business School applied his theory of domestic competitive advantage to international competition in his book *The Competitive Advantage of Nations* and constructed the famous Diamond Model (also known as the Theory of National Competitive Advantage of Industries). Porter equates the competitive advantage of a nation to that of its industry and enterprises. He believes that a country's competitive advantage in the international market is driven by the competitive advantage of its leading industry, and the competitive advantage of the leading industry draws from the competitiveness of enterprises. The competitive advantage of enterprises is created and sustained with their domestic economic environment, the most essential of which are factor conditions, demand factors, related and supporting industries, strategy, structure, and rivalry of enterprise, and so on.

① This section is partly cited from Zhaoming, Gui. Huiyao, Wang. Report on China's Regional Talent Competitiveness. No.1 [M]. Social Science Literature Press, 2013: 46-49.

The Comparative Evaluation of National Competitiveness

A system globally accepted and widely used in evaluating the competitiveness of countries is the IMD World Competitiveness Yearbook (WCY) proposed by the International Institute for Management Development (IMD) in Lausanne, Switzerland and the Global Competitiveness Report conducted by the World Economic Forum (WEF).

The World Competitiveness Yearbook is an annual report on the economic competitiveness of countries published yearly since 1989 by IMD in Lausanne, Switzerland. The Yearbook provides extensive coverage of 64 economies, choosing indicators based on the availability of comparable international statistics and its collaboration with local partner institutes. The World Competitiveness Yearbook argues that competition among countries is reflected in their ability to create an environment for enterprises to continuously increase their competitiveness, including effective structures, institutions, and policies. In this sense, national competitiveness and enterprise competitiveness are two interdependent concepts, and the international competitiveness of a country (or region) is its ability to help enterprises remain competitive, which lays the theoretical foundation for conducting national competitiveness evaluations. The World Competitiveness Yearbook believes the development of international competitiveness is mainly determined by several important factors, such as economic performance, government efficiency, business efficiency, infrastructure and so on. The Yearbook ranks national competitiveness based on 333 competitiveness criteria selected on a basis of comprehensive research using economic literature, international, national, and regional sources and feedback from the business community, government agencies and academics. The criteria are revised and updated on a regular basis as new theories, research and data become available and as the global economy evolves. ①

The Global Competitiveness Report is a study report published by the World Economic Forum on the evaluation of national economic development and policies. Since 2004, the report has ranked the competitiveness of countries based on the Global Competitiveness Index, which is itself based on the latest theoretical and empirical research. The report compares and analyzes key competitiveness indicators of 141

① IMD. World Competitiveness Ranking. [2022-09-21]. https://www.imd.org/centers/world-competitiveness-center/rankings/world-competitiveness/.

countries and regions. It consists of more than 110 variables, two-thirds of which come from surveys and one-third from publicly available sources such as the United Nations. These indicators are organized into twelve pillars,[①] each of which represents an area considered to be an important determinant of competitiveness. [②]

Article Review of the Studies on Competitiveness Evaluation

There are various methods that can be used when evaluating competitiveness, which can be divided into single indicator evaluation and indicator group evaluation methods depending on the number of indicators. Since competitiveness is a complex phenomenon, a single index method cannot fully reflect the condition of regional competitiveness, and the indicator group evaluation method is usually preferred. Standard evaluation methods include the synthetical index method, cluster analysis, factor analysis, analytic hierarchy process, etc.

Competitiveness evaluation methods can be further divided into four major categories based on attributes, which include qualitative, classifying, ranking, and operational.

Qualitative Evaluation Methods

There are several qualitative evaluation methods including factor analysis and connotation analysis among others. The factor analysis method generally approaches the subject from the outside working inward, starting from the most superficial and easily perceived attributes, and gradually going deeper into the more internal attributes and factors. The connotation analysis method combines qualitative and quantitative analyses, focusing on the internal factors affecting regional competitiveness. Expert opinions or questionnaires can supplement analysis and decision-making for some factors that are difficult to quantify.

Classifying Evaluation Methods

Classifying evaluation methods include fuzzy comprehensive evaluation, cluster analysis and matter-element among others. The fuzzy comprehensive evaluation method includes strict quantitative characterization and qualitative descriptions of

① These pillars are namely institutions, proper infrastructure, stable macroeconomic framework, good health and primary education, higher education and training, efficient product market, efficient labor market, developed financial market, ability to use existing technologies, domestic and international market size, production of new and different goods using the most complex production processes, innovation.
② The World Economic Forum. Global Competitiveness Report. [2022-09-21]. https://www.weforum.org/reports/how-to-end-a-decade-of-lost-productivity-growth.

fuzzy phenomena that are difficult to analyze quantitatively. The combination of both is usually used in regional competitiveness evaluation.

The cluster analysis method is used to study classification, combining contemporary taxonomy and multivariate analysis. When evaluating regional competitiveness, the competitiveness status of different regions can be classified, and the relative strength of regional competitiveness can be determined.

The matter-element method applies theories from physics to the study of systems, establishes concepts of system matter-elements, compatible systems, and incompatible systems, and proposes relevant methods to transform incompatible systems into compatible systems, which can be used to deal with problems in incompatible systems through system matter-element transformation.

Ranking Evaluation Methods

Ranking evaluation methods include comprehensive index analysis, principal component analysis, factor analysis, set pair analysis, the analytic hierarchy process, and efficacy coefficient method.

Comprehensive index analysis is a comprehensive index evaluation method. The method chooses certain qualitative and quantitative indicators to achieve unified quantitative comparison after dimensionless processing, to ultimately achieve a specific comprehensive evaluation index.

The principal component analysis method defines several composite indicators that are unrelated to each other and reflects as much as possible the amount of information provided by the original indicators.

Factor analysis assumes that a large number of observed variables have a few hidden dimensions called “common factors” and that most of the total variation of each observation variable can be explained by these common factors. The part that common factors cannot explain is called the “special factor” of the variable. Therefore, all observed variables can generally be expressed as a linear combination of common and special factors, which is called the linear model of factor analysis.

Set pair analysis is a new approach to system analysis, the core idea of which is to consider certainty and uncertainty as one system. In this system, certainty and uncertainty influence, restrict and transform each other under certain conditions, using a definite uncertainty formula that can fully embody its ideas to describe various uncertainties uniformly, so as to transform the dialectical understanding of uncertainty into a specific mathematical tool.

The analytic hierarchy process (AHP) is a practical method for solving multi-level and multi-criteria decision-making problems, which provides an objective mathematical method to deal with the inevitable subjective and personal preference effects of individual or group decision-making.

The efficacy coefficient method is an evaluation method that determines the satisfaction value and the null value for each indicator according to the principle of multi-objective programming. It then uses the null value as the lower limit to calculate the power coefficient of each index through the power function, and finally weights the comprehensive index.

Benchmarking Methods

The benchmarking method not only evaluates and judges the level of competitiveness, identifying the main reasons for competitiveness, it also provides pathways for improving competitiveness. The benchmarking method follows specific steps: First, determine the subject, object, and content of benchmarking. Second, form a working group and determine the work plan. Third, collect information and conduct surveys. Fourth, analyze and compare, find out the gaps, determine the best method, clarify the direction of improvement, and formulate an implementation plan. Fifth, organize the implementation, compare the implementation results with best practices, then revise and improve these based on the comparison in order to achieve the best outcome in terms of practical application and exceed the benchmark level.

Content and Evaluation of Talent Competitiveness

Talent competitiveness is a relative concept obtained through comparison, which is a comprehensive concept. At the same time, it is also a dynamic concept that changes along with the economic and social environment. Talent competitiveness is also a differential concept that adapts to changes in subjects - different countries, different regions in the same country, different industries (sectors) in the same region, and different enterprises (organizations) in the same industry (sector). Talent competitiveness is mainly composed of three parts: (1) practical talent competitiveness; (2) potential and expected talent competitiveness; (3) the ability to transform the potential talent competitiveness into actual competitive advantage. Talent competitiveness is a comprehensive internal capability, existing in contrast to competitors and influenced by the external environment, while also incorporating

various other capabilities.

The evaluation of talent competitiveness is an important topic in the study of talent competitiveness. It not only explores the nature, origins, basic factors, and interrelationships of competitiveness in economics and management, but also to shows the status of competitiveness statistically through the use of quantitative indicators.

Talent competitiveness indicators can be divided into two main categories: effectiveness indicators and attribution indicators. The former reflects the results of the competition as with the final performance of competitiveness, while the latter reflects the causes or determinants of competitiveness. Talent competitiveness evaluation applies the methods based in economics, management, and statistics to reflect the true state of national and regional competitiveness in relative terms and make realistic evaluations and analyses.

Current well-known talent competitiveness indices include the Global Talent Competitiveness Index and the World Talent Ranking among others. These indices study the talent competitiveness of different countries from varied perspectives.

Global Talent Competitiveness Index, GTCI

The Global Talent Competitiveness Index (GTCI), first launched in 2013, is an annual benchmark report published by the European Institute of Business Administration (INSEAD) and its partners. It measures and ranks countries and cities by their performance in talent development, attraction, and retention, in order to assess the talent competitiveness of countries around the world and advice governments and enterprises on how to enhance talent competitiveness.

The GTCI is a comprehensive index that uses the Input-Output Model, which consists of six categories of indicators (four on the input side and two on the output side). The Talent Competitiveness Input sub-index is composed of four pillars describing the policies, resources, and efforts that a particular country can harness to foster its talent competitiveness. The Talent Empowerment pillar reflects the extent to which the regulatory and business environment creates a favorable climate for talent to develop and thrive. Talent Attraction, Talent Development, and Talent Retainment pillars focus respectively on what countries are doing to attract, grow, and retain talent. The Input sub-index is the simple arithmetic average of the scores registered on these four pillars. The Output sub-index is mainly measured through two pillars—Vocational and Technical Skills and Global Knowledge Skills. Mid-level skills, labeled Vocational and Technical Skills, describe skills that have a technical or professional base acquired

through vocational or professional training and experience. The economic impact of Vocational and Technical Skills is mainly measured by labor productivity, the relationship of pay to productivity, and mid-value export products dependent on these skills. High-level skills, labeled Global Knowledge Skills, deal with knowledge workers in professional, managerial, or leadership roles that require creativity and problem-solving. Their economic impact is mainly evaluated by indicators of innovation, entrepreneurship, and high-value export products dependent on these skills.

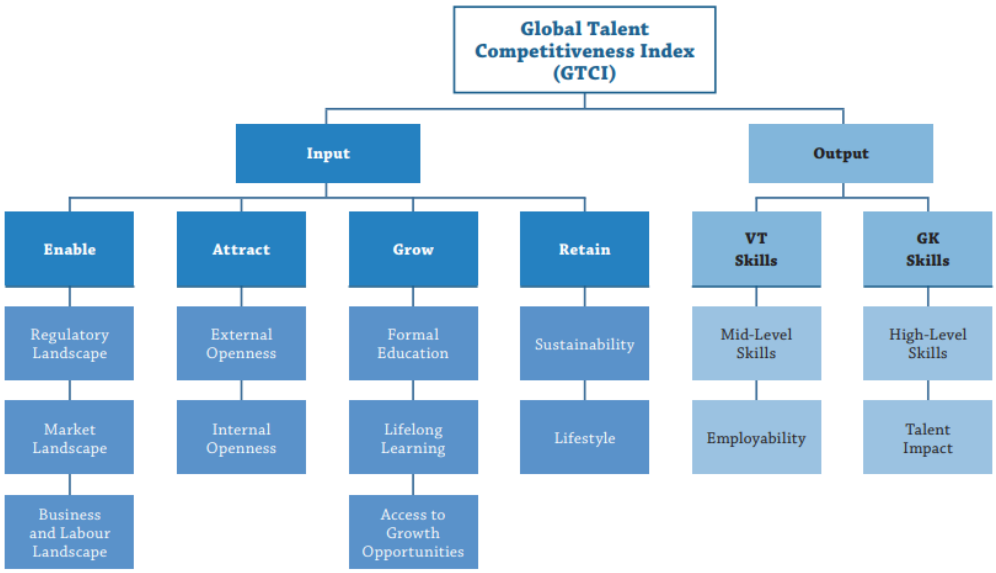

Figure 5.1 2023 GTCI structural model

Source: INSEAD. The Global Talent Competitiveness Index 2023. https://www.insead.edu/system/files/2023-11/gtci-2023-report.pdf.

The GTCI model is continually refined. For example, the 2023 model removed one indicator and added a new indicator of vulnerable employment. The number of indicators remained at 69, resulting in a more robust index.[①]

World Talent Ranking

The World Talent Ranking, published by the International Institute for Management Development (IMD) in Lausanne, Switzerland, evaluates 64 economies around the world in terms of their ability to nurture local human resources and attract outstanding talent, with statistics provided by UNESCO, OECD and partner institutions in the participating countries and regions.

The IMD World Talent Ranking is based on three main factors: the Investment and

① INSEAD Research & Learning Hub. The Global Talent Competitiveness Index (2021). https://www.insead.edu/sites/default/files/assets/dept/fr/gtci/GTCI-2021-Report.pdf.

Development Factor, which reflects the size of public investment in education and the quality of the education system; the Appeal Factor, which reflects the ability to retain local talent and attract foreign talent; and the Readiness Factor, which reflects the ability to exist talent to meet the demand of the market. The criteria data of the IMD World Talent Ranking is normalized using the same STD (Standardized Score) methodology adopted in the IMD World Competitiveness Yearbook. The overall talent ranking is constructed by aggregating all factors and presenting each factor and overall ranking from a score of 0-100.

Table 5.1 Composition of evaluation indicators of the World Talent Rankings

Factor	Criteria
Investment & Development	Total public expenditure on education
	Total public expenditure on education per student
	Pupil-teacher ratio (primary education)
	Pupil-teacher ratio (secondary education)
	Apprenticeships
	Employee training
	Female labor force
	Health infrastructure
Appeal	Cost-of-living index
	Attracting and retaining talents
	Worker motivation
	Brain drains
	Quality of life
	Foreign highly skilled personnel
	Remuneration in services professions
	Statutory minimum wage
	Remuneration of management
	Collected personal income tax rate
	Justice
	Exposure to particle pollution
Readiness	Labor force growth
	Skilled labor
	Finance skills
	International experience
	Competent senior managers
	Primary and secondary education
	Graduates in Sciences
	University education
	Management education

	Language skills
	Student mobility inbound
	Educational assessment - PISA

Source: IMD. World Talent Ranking. https://www.imd.org/centers/world-competitiveness-center/rankings/world-talent-competitiveness/.

Building a National Talent Competitiveness Evaluation System

Guiding Theories in the Evaluation System

As a country relies on talent to drive its economy and technology, the question of how to attract, cultivate, sustain talent, and foster an environment to develop the enthusiasm of talent is of strategic importance for all countries. Similarly, the basis and most fundamental factor affecting a country's talent competitiveness is its ability to cultivate, attract, compete, possess, apply, and transform talent.

From a developmental perspective, the relationship between resources and environment is based on the relationship between the internal and external factors that play a role in the development.

Factors such as economic status, education platform, science and technology platform, social environments, and cultural traditions in talent development have a considerable and sometimes decisive impact on the flow and aggregation of talent. Talent flows between countries are essentially movement between different systems, mechanisms, and policy environments and between economic, scientific, social, and humanistic environments. Talent tends to gather in places where all these factors are beneficial to the full use of their intelligence and long-term development. Therefore, when establishing external competitiveness indicators for a country's talent competitiveness, these indicators will be weighted significantly higher.

Basic Principles in Building an Evaluation System

Scientific

In creating a system for talent competitiveness evaluation system, this report has utilized the latest talent development research, fully integrating the existing evaluation

system and setting indicators closely related to talent characteristics, so that the evaluation system scientifically and holistically reflects the essence of talent competitiveness.

Quantifiable

Although systems, mechanisms, and policy environment directly affect national talent competitiveness, evaluating such factors is highly subjective, being affected by the subjective consciousness, cognitive ability and even personality, likes and dislikes of the evaluator, thus making it difficult to obtain objective and fair evaluations. Therefore, when building the evaluation system used in this report, we did not use qualitative evaluation results obtained through questionnaires and other similar methods. All indicators are based on data released by the World Bank and other institutions as well as quantitative results calculated based on the data collected.

Comparable

Given that "talent competitiveness" is highly dependent on context, this report also indexes different indicators of national talent competitiveness, making the subjects comparable.

Structure of the Evaluation System

Based on the principles mentioned above, we designed the structure for a system dedicated to evaluating talent competitiveness for individual countries. We divided talent competitiveness in terms an internal factor that reflects talent competitiveness, an external factor that influences talent competitiveness, and efficiency level factors that characterize the current status of talent competitiveness.

The internal factor of talent competitiveness reflects the core competitiveness of a country's talent pool in terms of entrepreneurship and innovation. Internal competitiveness factors include talent quantity and talent quality, which indicate the potential and expected talent competitiveness of a region. The external competitiveness factor affects the role of a country's internal talent competitiveness. It reflects external influences (work, living conditions, living environment, etc.) on innovation and entrepreneurship in a country, which can have a positive (stimulating, promoting) or negative (depressing, restricting) impact on a country's core competitiveness. External competitiveness factors include talent input indicators, living and working environment indicators, among others. This reflects a country's ability to transform potential talent

competitiveness into real-life scenarios and gain a competitive edge. A realistic expression of a country's talent competitiveness is reflected by its talent output, which indicates the extent to which a country's talent contributes to its socioeconomic development.

Evaluation Model of Talent Competitiveness

Developing a Model

Based on the structure of this talent competitiveness evaluation system, we have developed the following competitiveness evaluation model:

$$J_i = \sum B_k * Q_k$$

Where J_i is the talent competitiveness of different countries, B_k represents the indicators (indices) for the first and second tiers, etc., and Q_k is the weight of the indicators (indices) respectively corresponding to the first and second tiers. k is the number of indicators of the first and second tiers respectively. In this report, the number of indicators of the first-tier k is fixed at 5 (corresponding to the structure of the talent competitiveness evaluation system); while the number of indicators of the second tier is determined according to the different characteristics of the indicators at different levels.

Determining Weight

Different indicators have varying effects when using the evaluation index system we constructed before. In order to truly reflect the importance of different indicators in the evaluation index system, different weight coefficients are assigned to each indicator. The weight of indicators subjectively and objectively reflects the relative importance of each indicator, and reasonable weight coefficients are crucial in maintaining accuracy in the evaluation of national talent competitiveness.

For now, we are using collective advice from authoritative sources to decide the weighing of each indicator, such as the Delphi Method, the Analytic Hierarchy Process and Grey Relational Analysis.

The Analytic Hierarchy Process (AHP) is a multi-criteria decision-making method combining qualitative and quantitative analysis, which was proposed by American scholars led by T. L. Satty in the 1970s. The method is widely deployed when deciding the weighing of indicators because it provides vigorous analysis of the importance of

each indicator and performs thorough mathematical processing with a high degree of credibility, and organically combines subjective analysis and objective calculation.

After determining the structure of the indicator system, the report established indicator weighting in the regional talent competitiveness evaluation index system using the Analytic Hierarchy Process (AHP). Our research group gathered 13 experts to compare primary and secondary indicators side by side, using a scale of 1-13 to quantify the qualitative judgments of the experts, and constructed several pairwise comparative judgment matrices. In the single hierarchical ranking of these comparative matrices, we calculated the respective weight coefficients (accurate to two decimal places) and performed consistency tests. As the calculation process is relatively tedious and would take up too much space, it has not been included in this report.

Principles and Methods of Data Processing

We use indexing for all data processing in this report. There are different dimensions to the data for each talent competitiveness indicator, so it is necessary to integrate these indicators and conduct dimensionless processing of the index.

This study adopted the minimum-maximum normalization method to standardize the data to the range [0,1] without changing the numerical differences. The calculation method is as follows:

$$X_i = \frac{x_i - \min\limits_{1\le i\le n} x_i}{\max\limits_{1\le i\le n} x_i - \min\limits_{1\le i\le n} x_i}$$

To maintain the overall directional consistency of the composite index (where higher values indicate the better outcomes), negatively data were adjusted to align in the same directional process. The processing method is as follows:

$$X_i = \frac{\max\limits_{1\le i\le n} x_i - x_i}{\max\limits_{1\le i\le n} x_i - \min\limits_{1\le i\le n} x_i}$$

In this formula, Xi is the normalized index, xi is the original value, I is the country code, and n ranges from Int[1,38], representing 38 countries.

Appendix 2: Research Institutions and Research Team

Alliance of Global Talent Organization (AGTO)

As an idea incubated at the Paris Peace Forum, the Alliance of Global Talent Organization (AGTO) is an international non-governmental organization established to facilitate and promote the talent flow. Initiated by the Center for China & Globalization (CCG) and supported by academic institutions, civil society and the private sector, AGTO aims building an international platform to promote global governance innovation on talent. AGTO's objectives include: Holding the Global Talent Conference to form global consensus on talent cooperation, to build collaboration platforms for organizations, forge a "Talent Davos";Conducting researches, publish Global Talent Reports, introduce and connect the best practices in the fields, and provide talent training for international organizations; In the future, AGTO wants to create the talent credentialing services, establish a big data Centre for global talents, and other works.

Research Team Members

Wang Huiyao, Miao Lu, Zheng Jinlian, Gui Zhaoming, Zhang Wei, Zhao Zhanjie, Cao Xi, Wang Jiayu, Zhang Ruishi, Chen Jia, Li Haoyuan, Dong Siting, Lin Zhaonan，Zhang Ke

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For the electronic version, please contact: zhengjinlian@ccg.org.cn

全球人才流动趋势与发展报告（2025）

GLOBAL TALENT FLOW: TRENDS AND PROSPECTS

本报告汇聚了国际人才组织联合会（AGTO）研究人员及人才领域专家学者近年来的最新研究成果，通过综合研究、数据分析、政策分析，多方位展现全球人才流动的最新情况。本报告旨在推动开放，促进流动。第一章分析世界主要国家的人才竞争力指数，第二章分析全球人才流动的现状与趋势，第三章分析全球主要国家人才流动政策动向，第四章分析全球人才流动治理情况，并提出相关建议。本报告希望建立全球人才合作对话机制，促进国际人才交流，为全球人才流动提供治理方案与国际公共产品，推动共商共建共享共赢，促进达成人才发展与交流的全球共识，提升人才流动的公平性、协同性、包容性。

This report brings together the latest research results from researchers and experts of the Alliance of Global Talent Organization (AGTO) in the field of talent development, examining the current state of global talent mobility through comprehensive research, data analysis, policy analysis, and other analytical perspectives, based in principles of openness and the free flow of human resources. The first chapter looks at the talent competitiveness index of major countries. The second chapter looks into the current state of and trends in global talent mobility. The third chapter dives into the talent policies of major countries and their potential effects on global talent flows. The fourth chapter closes the report by providing concrete advice for managing global talent flows. We hope to leverage this report to foster a global dialogue on international talent exchange and that it will serve as a global public good and as an aid to international talent governance. We are confident that facilitating the international flow of talent can effectively create a fairer, more cooperative, and inclusive international environment where we can reach a consensus on talent development and exchange and promote a shared future with win-win results.

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