

CHINA'S APPROACH TO TECH TALENT COMPETITION: POLICIES, RESULTS, AND THE DEVELOPING GLOBAL RESPONSE

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EXECUTIVE SUMMARY

China sees talent as central to its technological advancement; President Xi Jinping has repeatedly called talent “the first resource” in China’s push for “independent innovation.” As part of this push, China has formulated a multi-pronged strategy for growing its science and technology talent pool: (1) improving domestic education, (2) attracting overseas Chinese talent, and (3) attracting foreign talent.

Each of these three goals has recently seen significant policy reforms and investments. But while China’s intentions are clear, its prospects for success are not. In many cases, plans that look impressive on paper have yielded mixed results in practice. Attracting high-quality talent from abroad has proved challenging, and significant barriers to success will likely remain in place for the foreseeable future.

In responding to China’s international talent push, other countries face dueling incentives. On the one hand, universities and businesses benefit greatly from the presence of international talent, and China is the world’s biggest source of it. This reality has long pushed countries to compete in attracting Chinese talent. On the other hand, concerns about Chinese technology transfer and related talent policies are becoming increasingly widespread and acute. Countries have only just begun to navigate these trade-offs and challenges.

The developments reviewed in this paper hold several lessons for U.S. policymakers. First, Chinese officials see the United States’ continued ability to attract and

retain Chinese talent as a serious impediment to their technological ambitions. Policymakers should avoid adopting broad, restrictive policies that place this comparative advantage at risk. Several steps can be taken today to enhance the United States’ ability to take more targeted measures to address technology transfer concerns. Second, today’s international context means that unilateral U.S. attempts to reduce technology transfer by placing restrictions on Chinese talent will generally fail to achieve the desired results. Diplomatic engagement with allies and partners should therefore be a top priority. Third, in addition to adopting defensive measures, U.S. policymakers should draw inspiration from China’s emphasis on talent to formulate an equally wide-ranging workforce strategy. This strategy should include both domestic investments and reforms to the immigration system.

CHINA'S TALENT STRATEGY

China intends to be a global superpower in science and technology,¹ and sees talent as key to these ambitions. Programmatic emphasis on talent began around the turn of the century, when Chinese leaders decided to move the country away from a dependence on cheap labor-based exports toward a “knowledge-based economy.”² In many of the industries China has prioritized — including artificial intelligence (AI), biotechnology, and semiconductors — officials see high-skill labor shortages as a major impediment to their national goals.³

As a result, China’s talent push today receives the support of the country’s most senior leaders. The Chinese Communist Party’s (CCP) highest-ranking

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body, the Central Committee, wrote in its 2016 “National Innovation-Driven Development Strategy” that “the essence of being innovation-driven is being talent-driven,”⁴ and Xi Jinping has repeatedly called talent “the first resource” in China’s push for “independent innovation.”⁵ Experts have summarized China’s science and technology strategy as “Have Talent, Will Thrive.”⁶

China has taken a multi-pronged approach to building up its talent base, simultaneously implementing policies to (1) improve domestic education, (2) attract overseas Chinese talent, and (3) attract foreign talent.⁷ But while the CCP’s priorities and intentions are clear, its prospects for success are not. In each of these three areas — especially the second and third — publicly available evidence suggests that reforms have met with mixed results so far, and that significant barriers to success remain.

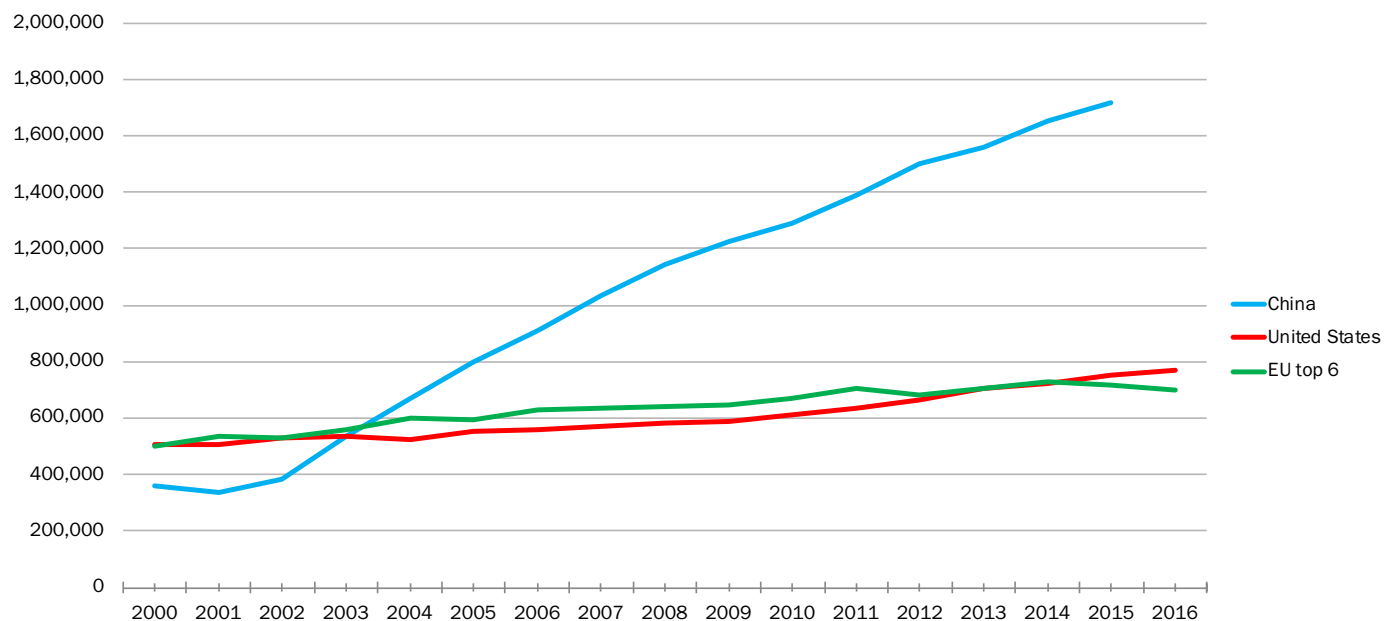
Domestic education reform

The Chinese government has prioritized the modernization of education at all levels since the 1990s, although some reforms had begun as early as 1978 when Deng Xiaoping inaugurated the “opening up” period.⁸ In 1999, several policies were adopted to significantly increase higher education enrollments.⁹ China’s most recent targets and reforms are outlined in its National Plan for Medium- and Long-Term

Education Reform and Development (2010-2020), which states that the “future development and great rejuvenation of the Chinese nation are predicated on talent and on education.”¹⁰ In early 2020, the Ministry of Education launched a pilot program to steer more students into courses relevant to “areas including high-end chips and software, intelligence in science and technology, new materials, advanced production and state security” in order to “serve the country’s significant strategic demands.”¹¹

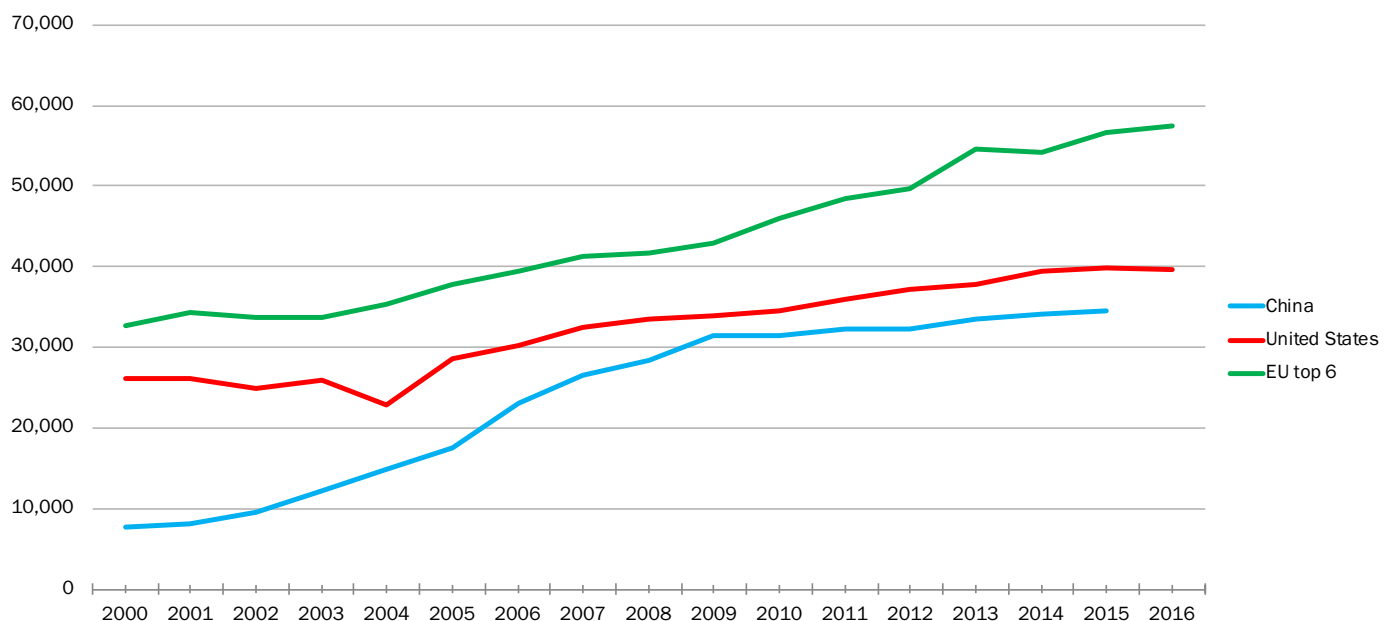
These reforms have clearly begun to bear fruit, though significant issues remain. According to the U.S. National Science Board, the number of undergraduate science and engineering (S&E) degrees granted by Chinese universities more than quadrupled from 360,000 in 2000 to 1.7 million in 2015; in that same period, U.S. and European universities saw much slower increases (Figure 1). The number of science and engineering Ph.D.s granted in China also grew rapidly in the first decade of the millennium, though growth has since slowed and Ph.D. production remains below U.S. and European levels (Figure 2).¹² Between 2001 and 2014, the number of universities in China reportedly increased from 1,022 to 2,824.¹³ A 2016 projection by the OECD’s education director predicted another 300% increase in Chinese graduates by 2030, compared to predicted increases of just 30% in Europe and the United States.¹⁴

FIGURE 1: NUMBER OF UNIVERSITY DEGREES IN SCIENCE AND ENGINEERING GRANTED PER YEAR



Source: Various data sources compiled by the National Science Board. “EU top 6” consists of the six European countries producing the most degrees: France, Germany, Italy, Poland, Spain, and the U.K.¹⁵

FIGURE 2: NUMBER OF PHD DEGREES IN SCIENCE AND ENGINEERING GRANTED PER YEAR



Source: Various data sources compiled by the National Science Board. “EU top 6” consists of the six European countries producing the most degrees: France, Germany, Italy, Poland, Spain, and the U.K.¹⁶

Trends in the quality of higher education in China are harder to evaluate. For example, Chinese officials often define “engineering” very broadly and group two- or three-year “short-cycle” technician programs with bachelor’s degrees.¹⁷ While these practices makes degree output look impressive on paper, the realities of the labor market are often less rosy; one extensive study found that, of the pool of 1.34 million undergraduate engineers China claimed to have graduated in 2006, only about 25% went into positions or programs fit for qualified bachelor’s-level talent.¹⁸ Widespread unemployment among Chinese college graduates persists today.¹⁹ The highly unequal distribution of quality and resources between different universities is also an enduring problem.²⁰ Whereas several top universities have large numbers of faculty doing cutting-edge research, non-elite universities often struggle to even find qualified instructors.²¹

Yet in spite of these issues, it is clear that progress has been made. Many experts expect that upward trends in both the quantity and quality of Chinese degrees will continue for the foreseeable future, especially among more elite institutions.²² China’s most recent national higher education push, the 2017 “Double World-Class Project,” involved the selection of 42 top universities for additional funding and recruitment privileges. Other reforms are happening at the local level.²³ While macro-level trends are positive, however, evidence on specific educational policies or programs tends to be less clear. For example, it remains to be seen whether the reported 196 Chinese universities with new AI-related efforts are actually making new investments or are mostly embellishing pre-existing programs.²⁴

ATTRACTING CHINESE RETURNEES

Since the reform and opening era began under Deng Xiaoping in 1978, China has encouraged its citizens to go abroad for training and education. The hope was that many would return to China after their time abroad, but until the early 2000s, the relevant Chinese ministries were, as two experts put it, “relatively passive” in pursuing that goal. As a result, the CCP’s influential Organization Department assumed a more active role in talent recruitment after the turn of the century, intensifying the country’s push to attract returnees.²⁵ United Front organizations, which exist to “rally social

groups and individuals to support the [CCP] and its objectives,” have also become increasingly active in talent recruitment activities; in 2015, Xi called for overseas Chinese students to be one of the three main focus areas of United Front activity.²⁶

Today, a plethora of both national and local policies and programs seek to attract Chinese citizens abroad back to China. Incentive programs, the most well-known of which is the Thousand Talents Plan (TTP), offer signing bonuses, high salaries and funding, and other perks such as support with housing and children’s education. Many Chinese professional organizations based abroad receive CCP support to spread awareness of these programs and opportunities in China among potential returnees. Once citizens come back, moreover, a network of hundreds of “returnee parks” and other intermediaries exist to help place and support returnees in their work.²⁷

The effectiveness of these and other tools in attracting back returnee talent is subject to debate. On the one hand, the CCP greatly exceeded its initial TTP recruitment target of 2,000 people within ten years, instead recruiting around 7,000.²⁸ A 2017 press release from the Ministry of Human Resources and Social Security stated that China had recruited 50,000 returnees through various programs (although it provided no details on how this number was calculated).²⁹ And, with hundreds of thousands of Chinese students getting university degrees abroad, it is not hard to find many anecdotal examples of returnees starting successful companies or otherwise contributing to China’s technological development.³⁰ In 2018, the Chinese Ministry of Education reported there were around 500,000 returnees (compared to around 650,000 students going abroad).³¹

But other evidence points to persistent challenges for the CCP’s returnee attraction efforts. Where data is available, statistics from “talent-receiving” countries such as the United States show very high stay rates among Chinese graduates and — contrary to increasingly widespread perceptions of a “reverse Chinese brain drain” — no recent downward trends.³² For example, the rate at which Chinese students stayed in the United States after getting AI Ph.D.s from U.S. universities held steady at around 90% from 2014 through 2018.³³ Past studies also point to quality issues with those who do

return, suggesting that many of China's most talented researchers still prefer to remain abroad,³⁴ although available data on returnees' relative quality is sparse and lags behind current activity by a number of years. The number of Chinese students and scholars going abroad has also kept increasing; in 2013, after more than a decade of CCP investment, the head of the party's Central Talent Work Coordination Group was still complaining that "the number of top talents lost in China ranks first in the world."³⁵ Lastly, not all returnees stay; the phenomenon of departing returnees has become common enough that a term, *guihai* ("returning overseas"), was recently coined for it (a play on the term *haigui*, or "sea turtle," long used to describe returnees).³⁶

Several factors contribute to this mixed picture. China is increasingly attractive to overseas citizens because of the country's rising standard of living, growing R&D and education spending, and booming private sector. Indeed, surveys of Chinese returnees suggest many were not even aware of governmental talent programs and decided to come for personal reasons or for good professional opportunities.³⁷ In addition to these "pull" factors, there are also "push" factors at play. For example, perceived discrimination, including a "bamboo ceiling" on promotions within the U.S. private sector, can drive those with leadership and entrepreneurial ambitions back to China.³⁸

But other developments disincentivize talented Chinese citizens abroad from returning. The main barrier for most potential returnees is the importance of political factors and connections in determining professional success.³⁹ Whereas in the early 2010s experts saw a trend toward greater institutional autonomy,⁴⁰ universities and companies have become increasingly politicized under Xi Jinping. A guide published by the Ministry of Education in 2017 stated that, going forward, "ideological performance will be the most important factor in determining the career prospects of university faculty" and, according to one analyst, "provides no indication that certain fields of study (such as STEM [Science, Technology, Engineering, and Mathematics] fields) will be exempt from ideological performance requirements."⁴¹

Chinese students and scholars trained abroad can be disadvantaged in this context. Time spent outside of China is time not spent building local political

connections, and their training in a merit-based system makes many less willing to participate in network-based systems or, if they try, less successful at doing so. Indeed, while the CCP generally celebrates returnees, mistrust is also often part of the picture.⁴² These problems are most important within academia, where government funding can make or break careers, but are also present in the private sector.⁴³ Other issues often cited as disincentivizing return include lower quality of colleagues, internet censorship (e.g. not being able to access Google Scholar), and lower salaries.⁴⁴

China will almost certainly continue to invest heavily in attracting returnees for the foreseeable future. Since 2012, the China Scholarship Council (CSC) has more than doubled the number of available study abroad scholarships that require return to China after degree completion, although the vast majority of Chinese students going abroad will remain self-funded.⁴⁵ In 2018, the government placed the State Administration of Foreign Experts Affairs (SAFEA), the office responsible for foreign talent recruitment, under the auspices of the influential Ministry of Science and Technology (MOST), a bureaucratic reshuffle that experts interpreted as an intensification of China's efforts.⁴⁶ The CCP, responding to its difficulties attracting returnees, has also evolved a strategy that encourages overseas citizens to serve China from abroad in lieu of returning.⁴⁷

Whether these efforts pay off will arguably depend more on future trends in China's broader economic, political, and scientific environment than on targeted talent program activity. Return choices, moreover, are shaped not just by circumstances and policies in China but also by those in host countries like the United States, adding an additional source of uncertainty (host countries' policies will be discussed later in the paper).

ATTRACTING FOREIGN TALENT

The third prong of China's talent strategy is the attraction of foreign (i.e. non-Chinese) talent. Its "National Innovation-Driven Development Strategy" states that by 2050, the country should be an "important gathering place for global high-end talent," and that, to lay the groundwork for this goal today, China should "support global talent recruitment by colleges and universities, scientific research institutes and corporations."⁴⁸

The desire to attract foreign talent is evident in China's recent immigration reforms. Long seen as having one of the most difficult immigration systems, China's relevant ministries announced in 2017 that they were expanding its foreign talents ("R") work visa beyond "urgently needed talents" to include "scientists, entrepreneurs, and leading experts in science and technology industries." These reforms were followed in 2018 by the liberalization of permanent residency requirements.⁴⁹ Simultaneously, the CCP has also launched recruitment programs specifically aimed at non-Chinese talent — for example, the Thousand Foreign Talents Plan (TFTP) — that involve many of the same incentives as recruitment programs aimed at Chinese citizens.

There is so far little evidence that immigration reforms and other policy efforts are paying big dividends. In the first ten years of the TFTP, only 390 non-Chinese scientists and engineers enrolled.⁵⁰ Moreover, anecdotal reports suggest many foreign scientists leave China again within a short time period.⁵¹ In surveys, most researchers express rising admiration for Chinese R&D but say they simply do not want to move there; typically, 10% or less of foreign scientists would consider taking a job in China, compared to more than 50% for the United States and other Western countries.⁵² Commonly cited reasons for not wanting to move include China's political situation, internet censorship, language barriers, and quality of life factors (e.g. pollution).

China has had more success attracting international students, whose numbers grew rapidly to 492,000 in 2018, up from 225,000 in 2008. This growth follows a 2012 MOE target of enrolling 500,000 international students by 2020, backed by scholarships primarily for students from countries with whom China has tried to build closer economic and diplomatic ties.⁵³ Between 2014 and 2018, the number of African students in China rose from 42,000 to 82,000 and the number of students from Pakistan — which saw the biggest increase among all countries of origin — more than doubled from 13,000 to 28,000. Overall, around 65% of international students in China today are from Belt and Road countries and 60% are from Asia.⁵⁴

China's future foreign talent prospects are up for debate. Its apparent success in attracting international students is a sign of strength, but retaining them after graduation is another matter: integrating foreign talent into the Chinese labor market will be both more important and more challenging than recruiting international students.⁵⁵ Cultural and language barriers present significant obstacles for foreign talent in China, and there is little evidence of such barriers shrinking. Foreign talent also faces many of the same challenges that affect Chinese returnees (discussed above).⁵⁶ Chinese recruitment efforts have been, and will likely continue to be, most successful when targeted at groups where these obstacles loom less large — for example, among Taiwanese semiconductor engineers.⁵⁷

INTERNATIONAL RESPONSES

Policy conversations in the United States and other countries have so far primarily focused on Chinese talent (students, scholars, employees) within their borders. These conversations often expose two conflicting goals. On the one hand, countries compete to attract more Chinese talent in order to strengthen their universities and private sectors. On the other, in light of China's efforts to acquire dual-use technology by attracting returnees, countries have started worrying about what having Chinese talent means for their national security and long-run competitiveness.

The tension between these two priorities — attracting top international talent and protecting the domestic technology base — is important to understand, as it will shape U.S. success or failure as it engages with allies and partners on this issue.

Competition for Chinese talent

High-skilled talent is thought to be crucial to success in today's knowledge economy, and China is the world's biggest source of foreign-born talent. The best available statistics to illustrate this phenomenon focus on students, of whom China has approximately 900,000 abroad, three times more than second-place India.⁵⁸ (Unfortunately, similarly detailed statistics are not available for other important talent groups such as employed scientists and engineers.)

TABLE 1. THE NUMBER OF CHINESE HIGHER EDUCATION STUDENTS IN TOP STUDY ABROAD DESTINATIONS, ACADEMIC YEARS 2012/13 AND 2017/18

	Total number of Chinese students		Chinese students as % of total international students		Chinese students as % of total students	
	AY2012/13	AY2017/18	AY2012/13	AY2017/18	AY2012/13	AY2017/18
United States	235,597	363,341	29%	33%	1%	2%
Australia	94,901	135,072	39%	36%	8%	12%
United Kingdom	82,995	102,770	17%	20%	3%	4%
Canada⁵⁹	95,160	90,600	40%	29%	5%	4%
Japan	86,324	79,502	63%	42%	2%	2%
South Korea	50,343	71,075	59%	44%	*	*
Germany	25,521	34,997	10%	13%	1%	1%
France	30,349	30,071	10%	9%	1%	1%
New Zealand	12,785	18,890	31%	31%	4%	4%

Sources: Institute for International Education; South Korean Ministry of Education(endnote #). Numbers reported for Canada are for AY2013/14 and AY2016/17 due to lack of data. * = missing due to lack of data availability.

Note: "Project Atlas Infographics and Data," Institute for International Education, <https://www.iie.org/Research-and-Insights/Project-Atlas/Explore-Data>. Except: South Korean data from "국외(유학) 교육" ["Overseas (Study Abroad) Education"], South Korean Ministry of Education, <https://www.moe.go.kr/boardCnts/list.do?boardID=350&m=0309&s=moe>.

While the United States has long hosted the most Chinese students, it is far from having a monopoly (Table 1). Other English-speaking countries – mainly Australia, the United Kingdom, and Canada – are also popular destinations, as are Japan and South Korea, the two most developed countries in East Asia. European Union countries such as Germany and France generally have lower numbers of Chinese students. Out of all popular destinations for Chinese students, Australia is uniquely dependent: a full 12% of students at Australian universities are Chinese.⁶⁰

The drive to recruit more students and other Chinese talent by these countries illustrates the zero-sum elements of international competition today – even when the competitors are countries with close relationships and aligned geopolitical interests. As some

U.S. universities experience drops of more than 20% in Chinese enrollments,⁶¹ experts in Australia describe themselves as benefiting from tensions between China and the United States, calling the U.S. administration’s “negativity towards international students” a “massive asset.”⁶² The United Kingdom has seen the strongest gains recently, with U.K. universities experiencing a 30% growth in Chinese applications in 2019 and even, according to one survey of prospective Chinese international students, overtaking U.S. universities to become the most attractive study abroad destinations.⁶³

This battle for international talent is largely driven by countries’ desire to be competitive in science and technology. A prominent Canadian think tank summarized the consensus of a large expert convening as follows:

“Talent is a key factor of success in the era of the Fourth Industrial Revolution. Canada’s world-class research universities already attract international STEM talent and organizations ... As the U.S. continues to build a wall to exclude researchers from countries that it deems hostile, Canada should not only keep its doors open, but also actively attract and retain international talent seeking opportunities outside the U.S.”⁶⁴

Similarly, a European science analyst urged the EU to “take steps to engage more with China,” including “attract[ing] the best foreign talent,” to avoid “miss[ing] out in the future multipolar science and technology world.”⁶⁵

SECURITY CONCERNS ABOUT CHINESE TALENT

While historically viewed in a positive light, the large-scale presence of Chinese STEM talent abroad is increasingly also seen as a cause for concern. As both geopolitical tensions and China’s efforts to attract returnees intensify, policymakers now worry that the global presence of Chinese talent could facilitate China’s efforts to achieve technological dominance.

In the United States, these concerns were thrust into the spotlight in 2018 when Federal Bureau of Investigation Director Christopher Wray prominently called out Chinese “nontraditional [intelligence] collectors” such as scientists and students in Senate testimony.⁶⁶ Much attention since has been focused on Chinese talent programs such as TTP, which can involve legally and ethically fraught clauses on non-disclosure of participation and handling of intellectual property.⁶⁷ University associations have responded to FBI allegations of “naivete” by organizing and publishing guidelines on research security for member universities.⁶⁸ Some civil society groups and academics have also alleged ethnic discrimination, warning against sparking renewed McCarthyism.⁶⁹

These debates inform several policy conversations currently taking place in federal agencies and Congress, which have thus far focused on three categories of possible countermeasures:

- Potential visa-based restrictions on the ability of certain individuals to study or work at U.S. institutions, which would primarily involve the Departments of State and Homeland Security.
- Potential export control-based restrictions on what knowledge can be transferred to U.S.-based foreign talent (“deemed exports”), which would primarily involve the Departments of Commerce, State, and Defense.
- Potential grant- or contract-based restrictions on participation in federally funded research projects or institutions (or, at minimum, increased disclosure requirements about individuals’ foreign affiliations), which would primarily involve the main science funders, including the National Science Foundation, the National Institutes of Health, and the Departments of Energy and Defense.

Besides the United States, the country with the most developed domestic conversation around technology transfer and Chinese talent is Australia, which has seen both rising geopolitical tensions with China and a large increase in Chinese talent (Table 1). Its recent efforts include the creation in 2019 of a “University Foreign Interference Taskforce” that published guidelines about, among other topics, how to incorporate security into assessments of foreign research collaborations.⁷⁰

Concerns have also begun to surface in other countries. Canada’s head of intelligence gave a speech to university leaders in early 2018 that referred to the CCP’s use of “non-traditional [intelligence] collectors,” citing students and researchers as examples.⁷¹ In the Netherlands, a majority in parliament called for new policies after research revealed a top Dutch university educated more than 20 Chinese military scientists as Ph.D. students.⁷² In late 2019, British intelligence agencies launched a campaign to warn universities of potential threats to national security associated with Chinese (and Russian) ties,⁷³ Japan announced it will look to U.S. measures as a possible model for countering security risks from foreign students and collaborations,⁷⁴ and India said it would start requiring ministerial permission for any formal research partnership with a Chinese institution.⁷⁵

While concerns are spreading, policy conversations around potential countermeasures have not yet advanced very far in most countries. In the European Union, for example, research programs such as Horizon 2020 do not require any disclosure of foreign ties or funding, and rules explicitly permit researchers to have second labs based abroad. In-depth reporting by the magazine *Science* in September 2019 found that “no European funder has taken steps to address foreign influence that are comparable to what U.S. agencies have done over the past year.”⁷⁶

IMPLICATIONS FOR U.S. POLICY

In 2009, Denis Simon and Cong Cao, two long-time observers of China’s science and talent ecosystems, predicted that “competition for [science and technology] brainpower ... will become one of the key defining features of the West’s interactions with the PRC [People’s Republic of China] over the coming decades.”⁷⁷ A decade later, their prediction has clearly borne out.

The U.S. policy conversation around Chinese talent efforts has largely been defensive in its focus, revolving around questions of technology transfer and talent flows. In May 2019, the White House set up the Joint Committee on the Research Environment (JCORE) to coordinate federal outreach and policy.⁷⁸ The Commerce Department is in the process of deciding on new export control policies for “emerging” and “foundational” technologies, the State Department is considering changes to visa screening procedures, and science funders are formulating new risk assessment procedures and disclosure requirements. At the end of 2019, an extensive report by the Senate Permanent Subcommittee on Investigations reviewed these efforts and chided most agencies for doing too little to mitigate threats from China, thereby “undermin[ing] the integrity of the American research enterprise and endanger[ing] our national security.”⁷⁹

This paper’s analysis of China’s talent strategy and the developing global response highlights several important themes for U.S. policy as these conversations move forward.



Policymakers should recognize current U.S. strengths and avoid adopting overly restrictive measures that would serve — rather than hamper — China’s talent ambitions.

First, on the defensive front, policymakers should recognize current U.S. strengths and avoid adopting overly restrictive measures that would serve — rather than hamper — China’s talent ambitions. As this paper shows, Chinese officials often cite the U.S. ability to attract and retain top Chinese talent as a big challenge to China’s technological ambitions. The United States should avoid policies, such as broad nationality-based visa restrictions, that would erode this comparative advantage.

To enable more targeted countermeasures and improve risk assessment and screening capabilities, policymakers should enhance the government’s information-gathering and -sharing infrastructure. Integrated open-source intelligence (OSINT) capabilities would be especially valuable. For example, several recently indicted U.S.-based Chinese researchers accused of hiding their employment at a Chinese university had their dual affiliation listed on multiple public scientific papers.⁸⁰ Because OSINT has generally been undervalued within the U.S. government, such sources of information are insufficiently monitored and utilized.⁸¹ Policy coordination can also play a valuable role, for example by creating central information databases through the integration of different agencies’ funding application systems.⁸² These policies could aid in outreach to academia by reducing administrative reporting burdens on universities and by making it easier to share evidence of technology transfer with skeptical audiences.⁸³

Second, any unilateral U.S. defensive action risks displacing the problem instead of solving it. Many of the technologies U.S. policymakers want to protect, such as artificial intelligence, are widely available, and Chinese talent barred from the United States could generally get cutting-edge training and knowledge in

other countries. As is the case with export controls, competition with U.S. allies and partners is likely to render most unilateral U.S. counter-transfer measures ineffective.⁸⁴ The United States should therefore coordinate its policies with other countries to the maximum extent possible.

The main obstacle to such coordinated action is the incentive U.S. allies and partners have to compete with the United States for foreign talent. These competitive pressures will never entirely disappear, but they can be counterbalanced. Most other countries lack the China expertise and intelligence capabilities of the United States, and establishing or expanding mechanisms for targeted information-sharing could help increase awareness and facilitate coordinated counter-transfer policies. International meetings such as the Multilateral Action on Sensitive Technologies (MAST) conference are a first step in the right direction on this front.⁸⁵ In addition, recognizing that allies and partners might see material losses from foregoing certain types

of foreign research funding, talent, or collaboration, U.S. policymakers should consider what types of incentives (e.g., expanded joint R&D activities) could help compensate for those losses.⁸⁶

Third, defensive measures alone will not be sufficient if the United States is to compete with China in the long term. The CCP's investments in domestic education and talent should be viewed by policymakers not only as a trend to be feared, but also as a model to be emulated. And given China's size — a population four times that of the United States — any U.S. talent strategy seeking to compete with China in the long term will also have to involve harnessing America's attractiveness to foreign talent through high-skill immigration reforms.⁸⁷ Chinese strategists explicitly state that restrictive U.S. immigration policies provide them with new "opportunities to bolster [China's] ranks of high-end [AI] talent" and that U.S. immigration reforms "would pose a huge challenge" for China's talent efforts.⁸⁸

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