

How China Trained a New Generation Abroad

By David Zweig and Stanley Rosen

In 1978, Chinese leader Deng Xiaoping made a strategic decision to send 3,000 students and scholars from the People's Republic of China overseas for further education each year. His plan was to rebuild China's scientific community, catastrophically reduced during the decade-long anti-intellectual Cultural Revolution (1966-76) that had just ended. Even if 5 per cent did not return, he told critics, the policy would remain a success.

Deng clearly underestimated the magnetism of the West and its ability to keep China's best and brightest. As of 1997, only 32 per cent of the 293,000 students and scholars who had gone overseas since 1978 had returned, and 40 percent of those who did come home had gone out as short-term scholars sponsored by the state. Among the 154,000 "self-funded" students, the return rate was a paltry 3.9 percent.

Many universities and research laboratories under the prestigious Chinese Academy of Sciences have failed to attract back any young researchers who went abroad to earn a foreign PhD. According to the Chinese Statistical Yearbook (2000), between 1985 and 1999 nearly two-thirds of all graduate students who had gone abroad had yet to return. China, which had already lost one generation of scientists due to the Cultural Revolution, was devastated by this loss of some of the country's most valuable professionals. However, since the late 1990s, market liberalisation, increased privatisation, and globalisation have reversed that flow, bringing significant benefits to the country.

Concerns about China's brain drain

As the 1980s progressed, it became clear to the leadership in Beijing that a major brain drain was under way. According to a former employee in the Ministry of Education, a heated government debate took place in September 1988. The Ministry of Personnel reportedly expressed concerns that if too many scholars returned, there would be few suitable jobs for them. The State Science and Technology Commission (SSTC) asserted that only by staying abroad and working in foreign companies would these scholars have access to high-tech facilities and the scientific knowledge needed to modernise China's economy. In particular, the SSTC wanted to increase the number of students in, and the level of technology transfer from, the United States.

The Overseas Affairs Commission of the State Council hoped that if students became foreign citizens, Beijing's influence in overseas Chinese communities and in the body politic of Western societies would increase. Only the Ministry of Education, deeply embarrassed by the mass exodus of its students and scholars, advocated forcing

people to return. China's strategy, however, was best summed up by the then general secretary of the Chinese Communist Party, Zhao Ziyang, who said that it would be far-sighted for China to "store brain power overseas".

In retrospect, the decision to let many of its best and brightest move abroad proved prescient. There is no doubt that China did suffer a very significant brain drain for much of the 1980s and into the mid-1990s. Tens of thousands of people with graduate degrees left and did not come back. In particular, after the Tiananmen crackdown of June 1989, there was little reverse flow of talent.

Nevertheless, China does stand to reap significant benefits, turning its brain drain into a brain gain. Much of the cost for training this new generation of technical elite, for example, was borne by the World Bank, various international organisations, and the United States and other developed-world governments. And it is clear that an increasingly conducive environment is beginning to attract expatriates (or their capital) back to the country.

Economic factors in the brain drain

China had invested heavily in its first set of migrants. But by the mid-1980s it had shifted many of these costs on to Western institutions. In fact, the share of funds from the Chinese government decreased at an astonishing pace. In 1979, the government supplied 54 per cent of the financial support for scholars holding American "cultural exchange" (or J-1) visas. This had shrunk to 25 per cent in 1984, and to just 17 per cent a year later.

A 1987 US government policy paper chastised Chinese officials because "the consistent under-funding of officially sponsored Chinese students forces them to seek financial assistance elsewhere, rather than continue as [Chinese]-government funded students, and thus may contribute to development of ties which encourage them to remain abroad". To that extent, China has little right to accuse the West of a 'brain theft'.

But the attractiveness of post-doctoral fellowships at US universities still keeps many graduates from returning to China. According to the US National Science Foundation, of 16,500 Chinese citizens who received science and engineering PhDs between 1988 and 1996, 85 per cent planned to stay in the United States compared with 63 per cent of other foreign science and engineering PhDs.

Even state-sponsored Chinese scholars rely heavily on funding from their host country. A recent survey of 1,500 researchers who returned to China after studying abroad found that those supported by central government had still received a third of their funding from overseas agencies, while those sponsored by their workplace relied on overseas agencies for over 70 per cent of their funds. Altogether, almost 60 per cent of

the cost of training this entire group came from foreign agencies.

Yet China's strategy — to send out as many people as possible, support them for the first year, and then make them rely on foreign institutions — was not unwise. It allowed China to encourage large numbers of scholars to migrate who then had most of their overseas education funded by overseas agencies.

Sources of China's brain drain

So why didn't people return? A survey carried out by the authors in the United States in 1993 showed that more than 30 per cent of non-returners were concerned about political instability, while another 30 per cent emphasised professional problems in China, such as low salaries, poor research facilities and difficulties changing jobs.

People were also concerned about the complex nature of interpersonal ties within their workplaces and the power superiors had over their lives. Women were more likely than men to stay abroad. Such concerns — over political instability, gender inequality and poor work environment in their home country — mirror the classic brain drain phenomenon confronted by other developing countries.

In some ways measures to lure people back actually exacerbated the problem. The Chinese government granted returnees better housing, faster promotions and higher social status than those who had stayed. Similarly, from the late 1980s, Chinese cities started competing with each other to recruit this 'overseas talent', offering tax incentives, opportunities to buy homes and cars, and loans to start businesses.

These strategies actually fostered the brain drain, as the path to rapid promotion now involved first leaving China. And, given the quality of life overseas, the probability of returning was low.

Post-Tiananmen policy changes

In 1992, the Chinese government started to adopt a more enlightened attitude. The harsh suppression of the Tiananmen Square student protests in 1989 had left those studying abroad more reluctant than ever to return, pushing the government to implement new policies.

One, called "the freedom to come and go", promised returnees the right to go abroad again if they came home. They would also be able to move to cities and workplaces other than the ones they had originally left, accompanied by their spouses and children. Though such a policy may seem minor today, especially after China's accession to the World Trade Organisation (WTO) in 2002, it significantly liberalised what had previously been a very constrained intellectual labour market.

China has recently introduced new programmes to encourage world-class scientists to return from overseas. In the natural sciences, initiatives such as the Changjiang Scholars Programme funded by Hong Kong billionaire Li Ka-shing, and the Hundred Talents Programme run by the Chinese Academy of Sciences, give successful candidates research grants worth two million Chinese yuan (about US\$240,000), providing research facilities that compete with those overseas.

Such funds can also be used to supplement salaries and offer this class of returners high quality housing. One couple moving to the northeastern city of Changchun from Cal Tech in the United States received housing equivalent to that previously reserved for central government ministers. Similarly, the central government has recently allocated nine of China's top universities more than a billion yuan, at least 20 per cent of which must be used to recruit Chinese scholars from overseas.

China's government also encourages overseas entrepreneurs to open high-tech firms in the country. Those who relocate to cities where they may not have personal networks, such as Beijing, Shenzhen or Shanghai, and are encouraged to move into science parks, where local officials expedite the paperwork and limit the regulatory constraints they would normally face. Those holding foreign passports are given long-term residence permits, and in some cities the authorities and universities also help to sort out their children's educational requirements and assist with any other problems that arise.

These programmes are succeeding. Today, more than 1,700 private firms are run by returners in Shanghai alone, an increase of 80 per cent since 2001. And although some professionals return because they failed to find a steady or satisfactory job overseas, our survey of returners in China's export and high-tech development zones – areas in the suburbs of most major cities where investors get special business dispensations – suggests that some returners are bringing technologies that are highly beneficial to the Chinese economy. While these returners primarily seek to maximise their own economic advantages, the nation profits at the same time.

For example, among 65 returners interviewed in high-tech zones in Hangzhou, Guangzhou and Wuhan, nearly half had imported technology of which 71 per cent was state-of-the-art while another 23 per cent was new for China. Also, 23 per cent had imported foreign capital, while 28 per cent maintained overseas contacts on a daily basis. In-depth interviews reveal that these returners are raising the technological level of China's domestic economy.

"Serve the country without returning"

A significant change has taken place in the attitude of Chinese officials towards overseas scholars, forcing a rethink of the concept of a brain drain. One new policy, which calls on Chinese people to "serve their nation from abroad" encourages

overseas students to invest in China, join pro-Chinese business organisations, set up companies, give lectures, act as consultants, or engage in other forms of technology and financial transfer, all without having to move back to China. Introduced in 1995, this policy was formalised in 2001 and reflects the idea of "storing brain power overseas" advocated by Zhao Ziyang in 1987.

An official in the Shanghai Bureau of Personnel, who works with returners, says there is now no prejudice against those who don't come back. "Before, if they did not return, we called them 'class enemies' or unpatriotic. But our view has changed completely; we see this as a question of individual choice".

In fact, China's government recognises that it may be much more efficient to leave its scholars overseas; the state cannot pay their salaries, guarantee a high standard of living or afford the technical infrastructure and equipment they need to create new products. It is cheaper to leave them working overseas, but use various strategies to get them to help their home country. To reinforce this policy, the government now calls people who stay overseas "patriotic".

The pool of overseas human capital is large. There are 130,000 mainland Chinese students in the United States and 40,000 in Japan, with 50,000 and 15,000 respectively holding permanent residence. According to a Chinese evaluation 3 to 5 per cent of the 50,000 permanent residents in the United States are classed as "exceptional" (associate professors or department heads in large enterprises), while another 10 per cent are categorised as "rather talented". A recent government report asserts that the economic return of their contributions to China greatly surpass the state's investment in training and sending them overseas.

Continuing problems

Despite some success, however, the fever to go abroad lives on. Foreign PhDs are still more valued and rewarded than domestic ones, generating hostility between the two groups. Moreover, the belief persists that the road to success lies in overseas study, not domestic training. So, in 1999, 25 per cent of Chinese students nationwide entering graduate programmes went overseas.

In some cases, strong resentment is emerging towards returners, who are earning very large incomes or influencing policy in certain sectors such as finance and securities. A particularly bitter struggle is reportedly under way within the Securities Exchange Commission, which regulates China's stock market, with the major battle lines drawn between returners and those who have not gone overseas for a graduate degree. Such hostility could cause people to think twice before heading back to China, especially to work in the public sector.

There are also intellectual property issues, as people who created new technologies

while working overseas wish to transfer that technology into the ventures they set up in China. For example, two years ago, employees at Lucent Technology were arrested for transferring technology to a company in China without approval.

Concerns about returners' safety have been raised following the arrest for espionage of several academics who had trained overseas in the social sciences. Li Shaomin, a US citizen who was teaching at Hong Kong's City University, was found guilty despite little evidence, and after four months of interrogation and incarceration was expelled from the country. And Xu Zerong, a Chinese citizen with a PhD from St. Anthony's College at Oxford, remains in jail after more than one year. Still, for those not involved in politics, such acts are unlikely to have a major impact on their decision about whether to return.

Finally, recent interviews in Beijing suggest that not all returners are successful, as it is difficult to commercialise technologies that are brought back to China. Also, returners often lack the personal contacts needed to enter the Chinese market, and must find domestic partners who can devise successful marketing strategies.

Reaping the rewards of the brain drain

Market liberalisation and the expansion of the private sector have liberated many returners from the constraints imposed by the public sector, encouraging entrepreneurs to return and set up their own companies. Also, opportunities to sell in China's vast domestic market — since the country's leaders recognise that foreign technology can modernise the domestic economy — particularly with technologies not readily available in China, entice profit-seekers back.

The effects of increasing globalisation and of China's accession to the WTO should swell the inflow. More foreign firms mean more jobs for Chinese who want to return without giving up a comfortable lifestyle. For example, research centres run by Microsoft, Intel, Oracle and other multinational corporations afford Chinese professionals a chance to return under very favourable conditions. And the demand for more lawyers, accountants, financial analysts and other skilled personnel needed to make China WTO-compliant will no doubt grow. Returners, acting as go-betweens, will help foreign companies enter the domestic Chinese market.

Short of cash, China has managed to pass the cost of training its next generation of scientists onto the West. Now talented people, trained with foreign funds, are returning and generating considerable economic benefits, both direct and indirect. China will reap even bigger rewards from its policy of letting the best go overseas, both because of the increased number of returners and because many who do not return are nevertheless contributing to China's economic modernisation.

In this way, China's experience has been similar to that of Taiwan and South Korea. In

all three societies, economic development and proactive governments reversed a brain drain that had seen as few as 5 per cent of overseas students returning. Unlike the other two, however, economic liberalisation and the attraction of a modernising domestic market are pulling people back to China in the absence of any significant political changes. But while a stable democratic transition would generate its own power of attraction, as long as China resists rapid political change, the outward flow will remain strong.

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