Redefining the Brain Drain: China’s ‘Diaspora Option’

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A great dilemma confronting human resource development in non-industrialized states is the loss of human talent through the “brain drain.” For a variety of reasons, including political instability, salary differentials, inferior research facilities, family complications, including children’s education, and the relative rewards of individual labour in the West relative to their home country, educated people from many Third World countries are pushed out of their homelands and pulled into the industrialized world.³

Despite its authoritarian regime, and relatively strict control over immigration policy, China has been no less vulnerable to this outflow of human talent than many developing states. Between 1978 and 2002, almost 580,000 students and scholars have gone overseas and only 160,000 have returned. Initially, most returnees were government sponsored, visiting scholars, who had little opportunity to find permanent employment abroad.⁴ Recently, and quite fortunately for China, a significant “reverse brain drain” has emerged. While the average growth rate of returnees in the late 1990s was 13 percent, between 2001 and 2002, the number of returnees rose by 45 percent. For a developing country, that is no mean feat.

Yet while much attention has focused either on the “brain drain” or the “reverse brain drain,” many people who have not returned home still play an important role in China’s economic and technological development. Through a variety of mechanisms, from running businesses in their home country—even as they themselves continue to live abroad—returning to lecture or teach, transferring technology back to their homeland, helping to train graduate students overseas, or investing capital through remittances, this “diaspora option” is today seen as an important

⁴ Zweig and Chen, China's Brain Drain to the United States.
strategy for lessening the impact of the brain drain and perhaps even as a strategy for turning a potential loss into a significant gain.⁵

**Re-conceptualizing the Brain Drain**

Among scholars who study the brain drain and the migration of scientific personnel, the diaspora option has become an important strategy for utilizing the outflow that occurred due to the original brain drain. This idea involves a major re-conceptualization of the brain drain, seeing it less as a permanent exodus but more as a pattern of “brain circulation,” where talent may go abroad, but much information is circulated back to the original home country.⁶ In this way, scientific collaboration may ensue without people in the diaspora uprooting their lives and moving back home.⁷

Since many of these countries, particularly poorer ones in Africa or Latin America, lack the financial wherewithal or market opportunities to trigger a significant return flow, the diaspora option is seen as critical to narrowing the North-south scientific gap.⁸ For Dickson, the difficulty in triggering a reverse brain drain in many parts of the Third World, makes the diaspora option a moral necessity.⁹

The Taiwanese and Hong Kong Chinese were the first to follow this strategy within greater China. Many of these trans-nationalists, sometimes known as “astronauts” (*taikong ren*),...
left their families in Los Angeles or Vancouver and re-established firms back home, strengthening business networks across the Pacific. Saxenian shows that many firms established by Taiwanese and Indians in Silicon Valley actively promote global networks that link California and the home country of the immigrant professionals. China, too, has begun to benefit from this diaspora option as more and more scientists and professors with established positions overseas, including those who are now employed in businesses or who are running their own companies, are coming back to engage in business development in China. Promoting this diaspora option also forms a key policy innovation introduced by the PRC government in its S&T and human resource policies in the last decade. It began in the mid-1990s, with the “spring light project” (chunhui jihua), which brought overseas mainlanders back for short-term visits, while the government went on to formulate a major policy breakthrough in 2001 with a strategy it calls “wei guo fuwu” (“serve the nation”).

This paper looks at the evolution of this policy, presents some case studies, and uses data from a survey of mainland professionals in Silicon Valley to outline the characteristics of this process, whereby a mainland diaspora is bringing business opportunities, information and technology from the outside world to China.

*Chinese Government Policy Towards Chinese who Study Abroad*

The Chinese government’s attitude towards mainlanders who studied abroad but did not return (liu xue renyuan) has undergone a sea change. In 1988, when central leaders first realized

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11 AnnaLee Saxenian, with Yasuyuki Motoyama and Xiaohong Quan, *Local and Global Networks of Immigrant Professionals in Silicon Valley* (San Francisco, CA: Public Policy Institute of California, 2002).

12 There is a serious definitional problem here. Chinese sources call these people “liu xue renyuan,” which includes both people who are currently studying abroad or who have graduated and are now working abroad. Moreover, they apply the term to scientists, academics, current
the scale of the brain drain, officials in the Education Commission advocated severely
constraining the outflow. The State Science and Technology Commission, however, believed
that if people stayed abroad they would more easily gain access to U.S. technological skills. And
while the Ministry of Personnel also worried that if a massive inflow of talented people occurred,
it would create a crisis in the labour market, then Party Secretary Zhao Ziyang reportedly
portrayed the brain drain in a positive light, calling it “storing brain power overseas.”

Following the Tiananmen crackdown, the flow of returnees stalled, as government policy
swung sharply to the left, seeing many overseas students and scholars who marched in protest in
the West as class enemies. But after Deng Xiaoping’s southern tour, when he called on overseas
students to return, promising that all would be forgotten if they did not engage in any more anti-
government activity when they returned, policy liberalized considerably. In 1992, the official
12-point slogan on returnee policy emphasized the importance of getting people to come back and
offered them the “freedom to come and go” (lai qu ziyou) after they had returned. This policy
was the first hint that the state would consider a free flow of mainlanders back and forth.

In fact, as early as 1992 the Chinese government began to encourage citizens who
remained overseas to come back for short to medium periods of time, both to benefit from their
knowledge and perhaps to show them the changes that had occurred in China over the previous
ten years. According to one report, between 1992 and 1995, the Ministry of Education helped

students and business people. But in English, the term frequently used is “overseas students,”
even though the majority of these people have long since graduated. In fact, of 160,000
mainlanders described in English as “overseas students” in the U.S. in 2001, over 115,000 had
graduated.

13 This paragraph is based on an interview in Cambridge, MA, 12 December 1989, and an
unpublished paper written by a former education official.
14 Jiao Guozheng, “Pengbo fazhan de chuguo liuxue gongzuo” (Flourishing Development of the
Work of Sending Out Overseas Students), Zhongguo gaodeng jiaoyu (Higher Education in China,
Beijing) no. 12 (1998): 6-8, in Higher Education in China, Research Materials from People’s
University, no. 2 (1999): 72-74.
15 The slogan was, “support overseas studies, encourage returning to China, and freedom to come
and go” (zhichi chuguo, guli huigu, laiqu ziyou).
over 1200 people visit China and “serve the country” in some form.\textsuperscript{16} In 1996, in response to a successful visit by a group of mainland students studying in Germany, the policy of the “spring light project” (\textit{chun hui jihua}- 春晖计划), went into a formal experimental stage, and in 1997 was officially established. It offered financial support for people to return for short-term visits.\textsuperscript{17} According to one consular official, the program paid only for one-way air tickets, under the assumption that Chinese scholars with overseas positions could use their own research grants to pay for the return airfare.\textsuperscript{18}

That first year, 600 scholars came on the program, and in 1998 the program was expanded, more funds were added, and the government became more involved in encouraging people who remained overseas to help with national development. In November 2000, under document No. 81, the Ministry of Education began a program to get people to return during their summer vacation and agreed to pay them as much as five times their overseas salaries. According to another report, between 1996 and May 2003, the Chinese government helped over 7,000 individuals and over 50 groups of overseas mainlanders come back to “serve the country.”\textsuperscript{19} In 2002 alone, the Ministry of Education awarded 14 projects under this program to seven universities for a total of 670,000 RMB.\textsuperscript{20}

The Changjiang Plan, funded by Li Ka-hsing’s Cheung Kong Conglomerate in Hong Kong, offered leading Chinese scientists living abroad a chance to return for one year in strategic research areas, while at the end of 2000, the Ministry of Foreign Affairs issued long-term,  

\textsuperscript{18} Interview with Chinese consular officials in Toronto, Canada.
\textsuperscript{19} “Chugu liuxue gongzuo jianjie” (A brief discussion of the work of sending people overseas), \textit{Shenzhou xueren}, @http://www.chisa.edu.cn/newchisa/web/3/2003-05-23/news_46.asp. As of 2001, the number was reportedly 3000, suggesting that another 4,000 had come in two and a half years. See http://www.why.com.cn/abroad_3/weiguofuwu/10_1/2.htm.
multiple entry visas to overseas students and scholars so they could come back and forth easily. In fact, a survey conducted in 2000 by the Ministry of Education found that of 551 overseas educated mainlanders who had set up enterprises in 13 industrial parks only 44 percent resided in China on a regular basis.\(^{21}\) Also, in 1999, China’s Natural Science Foundation began giving 20-30 awards a year—some as high as 500,000 RMB—to overseas mainlanders as “exemplary young researchers;” the stipulation was that they had to spend the money in China.

This type of policy was quite successful in Taiwan, which offered a special program for visiting professors and business consultants, including a competitive salary to induce Taiwanese to teach or work in Taiwan for a short period of time. Under the National Science Council and the Ministry of Education, more than 3,700 senior scientists and experts and 2,500 well-established scholars have returned to work in Taiwan as “Visiting Professors” or “Visiting Research Professors.”\(^{22}\)

Yet, by the turn of the 21st century, China was ready for a much more deliberate change in policy, one which no longer dwelled on the “brain drain” phenomenon but instead, focused on the benefits of the brain circulation.\(^{23}\) Leaders, such as Jiang Zemin and Zhu Rongji, had become more comfortable with the increasing globalization of talented Chinese,\(^{24}\) and recognized that if they were “to strengthen the country through human capital” (rencai qiang guo), they must grant

\(^{20}\) This is the website of Zhejiang University. See http://www-2.zju.edu.cn/zxw.
their citizens the freedom to come and go, and take jobs overseas or open companies while living abroad and then compete for those people in the global marketplace.

Thus in 2001, a major policy document, which combined the efforts of many ministries, called on mainlanders overseas to “serve the nation” (wei guo fuwu), even if they don’t “return to the nation” (hui guo fuwu). Under this policy, Chinese citizens who remain overseas and their organizations are encouraged to engage in seven different types of activities: (1) employ their professional advantages or the advantages of their professional bodies; (2) concurrently hold positions in China and overseas;25 (3) accept commissions to engage in cooperative research in China and abroad; (4) return to China to teach and conduct academic and technical exchanges; (5) set up enterprises; (6) conduct inspections and consultations; and (7) engage in intermediary services, such as running conferences, importing technology or foreign funds, or helping Chinese firms find export markets.26 China also called on the various communal organizations of overseas students, such as their professional, academic and technical associations to “give full play to their collective advantages in developing various activities in the service of China.”27

Given the nature of the activities included in the list, the government sees overseas PRC citizens establishing companies in the mainland—commonly referred to as “chuan ye”—as examples of serving the country, even though profit, rather than patriotism, may be their primary motivation. Thus, among three explanations for why Chinese help their country, Chen and Liu

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25 This has become known as the “dumbbell” model (moling moshi) because the individuals have a foot in two worlds.
cite the positive conditions for establishing enterprises created by China’s rapid economic
development and political stability.\(^{28}\)

According to an official at the Shanghai Bureau of Personnel, who works with returnees,
there is now absolutely no prejudice (qishi) against people who do not return. “Before if they
didn’t return, we thought of them as ‘class enemies’ or said that they were not patriotic, but now
our view has changed completely and we see this as a question of individual choice.”\(^{29}\) Moreover,
Chinese government officials inside and outside China see the benefit of having people staying
overseas contribute to national development. One consular official responsible for working with
overseas specialists from China commented that “it is good to have people stay overseas; they are
at the front-line of the information flow and can help China. Sometimes people who come back
get cut off and lose touch with the trends within a couple of years.”\(^{30}\)

Also, today the Chinese government recognizes that the expertise that these people have
acquired overseas may have made them too expensive for the Chinese state, or for state-run
institutions, under current conditions. Also, the state cannot afford the technical infrastructure and
equipment they might need to create new products. But, if they run their own high tech business
overseas or work in an overseas company, and keep up contacts with the motherland, China will
reap significant returns with little investment. Given the enormous interest within the mainland
diaspora to take advantage of China’s booming economy, the Chinese government’s policy to
encourage academics, scientists and businessmen overseas to establish businesses or research
institutes in China is well timed.

Consular officials, particularly in the education and science sections, invest time and
energy to cultivate good ties with talented mainlanders who remain overseas and help them
connect with people in China so that they can participate in research projects at home. For

\(^{28}\) See Chen Changgui and Liu Chengming, Rencai: hui gui yu shiyong (Human talent: Its return
\(^{29}\) Interview, Shanghai Department of Personnel, 2 April 2002.
\(^{30}\) Interview with Chinese consular officials in Toronto, Canada.
example, in December 2001, the science consul in China’s Los Angeles consulate, led a
delegation of overseas professors from the Chinese American Professors/Scholars Network to the
4th International Science-Tech Convention for Overseas Scholars and Professionals in
Guangzhou. At least 34 people from this one association attended the conference. According to
Chen, mobilizing the consulates to do this work is a very important part of utilizing the former
students who have remained in the diaspora. Therefore, the size of the consular staff in the
education section should be expanded. After a number of years abroad, mainlanders may lose
touch with developments in China, be unfamiliar with the research underway and not know with
whom they can link. So consular officials organize meetings where delegations from China
describe the changing circumstances on the mainland to people in the diaspora. Consular officials
also help delegations contact Chinese student organizations or arrange meetings with important
overseas scholars.

According to one study of Eastern Europe, the Chinese government actively employs
traditional organizational principles, such as those underlying the United Front policy, to
courage overseas students and scholars to contribute to the motherland. Officials reportedly
courage people to join pro-mainland organizations, regularly meet with these associations,
inform them about changes in the mainland, and encourage them to contribute to the motherland.
To reinforce this policy, they even call people who stay overseas “patriotic.”

Some mainland officials working overseas in the education sections of Chinese
consulates deny that such a strategy exists, arguing that they mobilize people overseas much more
haphazardly. Nowadays, they argue, the sole incentive that can successfully encourage
cooperation is economic and self-interest, not ideology or patriotism.

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32 Chen and Liu, Human talent: Its return and use, pp. 191.
33 Interview with a Chinese student organization in Toronto, August 2003.
34 Pal Nyiri, “Expatriating is Patriotic? The discourse on ‘new migrants’ in the People’s Republic
of China and identity construction among recent migrants from the PRC,” Journal of Ethnic and
Still, professional associations in disciplines, such as economics, political science, history, agriculture, etc., have been bridge-builders between China and the West. Some were supported by international donors, such as the Ford Foundation or the Rockefeller Foundation, while others were supported by the Chinese government.\textsuperscript{35} For example, in 2004, the Economic and Technology Division of the Shanghai government’s Overseas Chinese Office (Qiao ban) offered to strengthen alumni associations in the U.S. for all of its universities in order to disseminate information about business and scientific opportunities in Shanghai to mainlanders in the U.S.

\textbf{The Emergence of a Highly Skilled Mainland Diaspora}

Even before 1989, the number of highly trained mainlanders staying overseas began to grow. The purge of Hu Yaobang from his post as General Secretary of the Communist Party in January 1987 and the subsequent “Anti-bourgeois Liberalization Campaign,” warned people overseas that conservative forces still dominated the political scene and that political campaigns were not a thing of the past. But as Figure 1 shows, the Tiananmen crackdown of June 4, 1989, created an instant diaspora of Chinese who did not want to return to the PRC.\textsuperscript{36} This diaspora involves an enormous pool of Chinese talent overseas that the government wants to tap. According to the National Science Foundation data (Table 1), between 1988 and 1996 China produced twice as many science and engineering Ph.D.s in the U.S., as its closest rival, Taiwan, and comprised 47\% of all foreign science and engineering students who had firm plans to stay on in America, although many were on post-doctoral fellowships, which meant that they were more likely to return than if they had a secure job. However, as table two shows, while the total number

\textsuperscript{35} For an earlier study of these groups see “Chinese Academic Associations in the U.S.: Bridges for Scholarly Discourse,” \textit{China Exchange News}, no. 19 (Spring 1991): 8-15. Taiwan’s National Youth Council helped Taiwanese overseas organize more than 20 professional societies and hold annual academic conferences annually to promote trans-Pacific exchanges. See Tsay, “Taiwan: Significance, Characteristics and Policies,” p. 128.

\textsuperscript{36} Among 273 mainlanders interviewed in 1993 in the United States, 19.2\% said that June 4\textsuperscript{th} had “a very important effect” on their decision to stay in the U.S., while another 17.7\% said that it had “a somewhat important effect.” See Zweig and Chen, \textit{China’s Brain Drain to the U.S.}, p. 132.
of mainlanders surpasses any other Asian country, the percent of Indians with firm plans to stay is greater than their mainland counterparts.

**Figure 1: Non-U.S. citizens awarded doctorates in science and engineering: PRC, Taiwan and India, 1998-2002**

![Graph showing the number of non-U.S. citizens awarded doctorates in science and engineering from PRC, Taiwan, and India, 1998-2002.]


**Table 1. Number and percent of Asian S&E doctoral recipients with firm plans to stay in U.S., 1988-96**

<table>
<thead>
<tr>
<th>Location</th>
<th>Total S&amp;E doctorates</th>
<th>Total with Firm plans</th>
<th>Percent with Firm Plans</th>
<th>Postdoctoral study</th>
<th>Percent</th>
<th>Total Employment</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia (total)</td>
<td>43,171</td>
<td>16956</td>
<td>39.3</td>
<td>9766</td>
<td>22.6</td>
<td>7189</td>
<td>16.7</td>
</tr>
<tr>
<td>PRC</td>
<td>16,550</td>
<td>7930</td>
<td>47.9</td>
<td>5085</td>
<td>30.7</td>
<td>2845</td>
<td>17.2</td>
</tr>
<tr>
<td>India</td>
<td>7,843</td>
<td>4291</td>
<td>54.7</td>
<td>1828</td>
<td>23.3</td>
<td>2463</td>
<td>31.4</td>
</tr>
<tr>
<td>Korea</td>
<td>8,851</td>
<td>2002</td>
<td>22.6</td>
<td>1505</td>
<td>17.0</td>
<td>497</td>
<td>5.6</td>
</tr>
<tr>
<td>Taiwan</td>
<td>9,927</td>
<td>2733</td>
<td>27.5</td>
<td>1348</td>
<td>13.6</td>
<td>1384</td>
<td>13.9</td>
</tr>
</tbody>
</table>

Table 2. Number and percent of Asian S&E doctoral recipients with firm plans to stay in U.S., 1990-2001

<table>
<thead>
<tr>
<th>Location</th>
<th>Total S&amp;E doctorates</th>
<th>Total with Firm plans</th>
<th>Percent with Firm Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.R. China</td>
<td>7,283</td>
<td>10,564</td>
<td>9,351</td>
</tr>
<tr>
<td>India</td>
<td>3,253</td>
<td>4,760</td>
<td>3,601</td>
</tr>
<tr>
<td>South Korea</td>
<td>4,319</td>
<td>3,960</td>
<td>3,124</td>
</tr>
<tr>
<td>Taiwan</td>
<td>4,588</td>
<td>4,716</td>
<td>2,829</td>
</tr>
</tbody>
</table>


A research team sent from China in 2002 found that there were at least 130,000 current or former students from the mainland in the USA and 40,000 in Japan, with 50,000 and 15,000 respectively possessing permanent residence status. Two-thirds of them had completed their studies. Based on an evaluation scheme, which defines associate professors or department heads in large enterprises as “exceptional” people, equivalent to middle ranking cadres or higher on the mainland, 3-5 percent of the 50,000 permanent residents in the U.S. would fall into this group, while another 10 percent would be categorized as “rather talented.” Moreover, the economic returns of their contributions to China “greatly surpasses the state’s level of investment in training and sending them overseas.”

The Chinese government recognizes that this pool of human capital is quite large. According to Vice Minister of Personnel Shu Huiguo, 100,000 students and scholars have contributed to the development of the motherland in various ways, other than returning.

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37 Analysis provided by Chen Changgui, based on his participation in this investigation group.
Different Ways to Serve the Country

We now look at ways that mainlanders in the diaspora serve China. Some strategies were employed by academics or scientists; others by people in business. Some combine the two cohorts; in particular, scientists working in universities or laboratories who devise a new product may be keen to manufacture it on the mainland, either for export or for sale in the domestic market.

Serving Through Teaching or Lecturing

People overseas can help the mainland by teaching, lecturing, or organizing seminars. Since 2000, the Chinese Academy of Sciences brings 15 mainlanders working overseas (plus 10 others who have worked overseas) to run courses at the Shanghai Institute for Biological Sciences. One organizer, a faculty member at the institute, got a Ph.D. in Zurich and then worked in the U.S.; a second organizer teaches at Washington University in St. Louis.\(^{39}\)

The new policy outlined in 2001 encouraged overseas mainlanders to use their professional associations to help China. One such organization is the Chinese American Professors/Scholars Network in the United States, whose many programs link mainlanders in the U.S. with institutions in China. It serves as an information channel for programs on the mainland, which encourage academics and scientists working in the U.S. to participate in projects in China. For example, in 2001 they helped recruit participants for the “Fourth Annual Summer Teaching Program at Qinghua University by Excellent Young Chinese Scholars in the U.S.”

Another format involves what is referred to as the “double base model” (liangge jidi moshi). This strategy involves holding positions in both China and the diaspora and jointly training graduate students. For example, one former Beijing University undergraduate received a Canadian Ph.D. in psychology. After setting up a lab at a major Canadian university, he returned

to Beijing University where he established a second laboratory. His goal is to create collaborative projects between the two centres. From his perspective, working in China has major advantages: funding is easier, and interdisciplinary projects and programs can be established more readily because institute directors wield more administrative authority in China than in Canada. Also, the demand for his products—hearing aid implants—is enormous in China.

At Berkeley, a mainland professor of earth sciences (di qiu) became deputy director of a research center at Berkeley, as well as director of Nanjing University’s International Earth Sciences Systems Research Centre (guoji diqui xitong kexue yanjiu zhongxin). Nanjing University invested 8 million RMB in start-up funds for this center. He also organized numerous international conferences in China, bringing in the latest technology and information. According to reports, he quickly helped China reach international standards in a field where it had been far behind. Through such labs, diaspora professors can find new research opportunities, as well as return to China during the summer and continue their work.

Chinese institutes are often keen to establish these relationships, as they give them important overseas linkages. Universities now must compete for ranking based in part on their publications in international journals; part-time faculty increase those numbers by writing or co-authoring papers with domestic faculty members. As part of the “985” Project, established by Jiang Zemin to create “world class universities,” having internationally trained professors is an important indicator of success. Thus, a Ph.D. candidate at a Canadian university, possessing a Chinese Ph.D., became a visiting professor at his original home institute in China. They want him to help train graduate students and serve a bridge-building function. He is expected to return to China each summer, but is handsomely paid for doing so. From his perspective, he can earn a good summer salary and carry out research in his field. Shanghai Municipality has established an “E-Research Centre” in sociology the (Shanghai shi gaoxiao shehuixue “e” yanjiu yuan) by

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40 Interview, Mississauga, Ontario, August 2003.
41 Chen and Liu, Human talent: Its return and use, pp. 175-176.
buying a media centre and using it to run conferences, lectures and other programs with mainland faculty who remain overseas. Six local universities are part of this consortium, as Shanghai recognizes that its local universities would otherwise be unable to hire world-class faculty. Moreover, their publications count as publications of the university that has appointed them as a special research associates (teping yanjiu yuan).43

Still, managing such joint positions is not so easy. One interviewee said that, when he is in Canada, he spends half a day on email with China. Second, his wife and child do not want to return to China permanently—his son got sick during their first return visit. Finally, numerous landmines await part-time returnees. A local scholar in his lab (tu bie pai) resents his influence and schemes against him, forcing him to spend too much time dealing with “personal politics.”

Establishing Businesses in China

China’s government encourages mainlanders overseas to establish businesses in China (chuan ye) and includes this activity under the rubric of “serving the country.” No doubt, the primary motivation of these people is profit; therefore, some observers assert that this form of activity should not be seen as “service.” For example, Jon Unger asks: “How are these Chinese any different from a Korean businessman or an American investor who invests in China?”44

They differ in several ways. First, they are a new phenomenon—only in the past few years has the generation of overseas students who went out after 1978 amassed the financial wherewithal to invest in China. So, the government wants to encourage them. Second, the government recognizes this group’s familiarity with high tech industries—a key target of the program to “strengthen the country through science and education” (ke jiao xing guo). Their firms often have new, high value-added products, or new management concepts, that let China compete

42 Interview, Missisauga, Ontario, August 2003.
43 Interview with Vice-President of a Shanghai university, October 2004.
44 Email message to the authors, August 2004.
in the global economy.\textsuperscript{45} Third, China’s government wants foreign exchange and foreign markets—partly to create more jobs—and firms established by PRC citizens overseas can attract venture capital and multi-national corporations to China. Fourth, overseas mainlanders are much more likely to transfer state of the art technology to China. Some mainlanders design new technology while working for foreign firms, but resent the fact that the foreigners maintain ownership over the technology, which they themselves created. So, they look for a partner in China and supply the new technology in order to reap the benefits of their own creativity. Finally, while these people have options as to where they can establish their firms, they choose to invest in China because of their familiarity with the country, some degree of patriotism, and their desire to engage with their motherland.

Perhaps we should think of their incentives as running from patriotism to self-interest. While foreigners fall close to the self-interest end of the spectrum, overseas mainlanders are more likely to be influenced partly by a desire to “serve the country.” While foreigners are looking primarily for cheap labour or access to China’s domestic market, China’s rise makes many mainlanders overseas proud and they want to be part of that process.

Overseas mainlanders have organized economic associations or special companies to invest in China. In San Francisco, mainlanders who have been overseas for over 10 years created a “huiguoshuangyezhuanjia tuan” (“Specialists who return to establish companies in China”).\textsuperscript{46} All either own their own companies or work in American companies, but together have established companies or joint ventures in China using capital and/or new technology.

These business associations often establish contact with one locality, perhaps even a small city, where strong ties with local officials yields important local preferential policies. These localities recognize that without preferential policies, they cannot get access to the technology


\textsuperscript{46} Chen and Liu, \textit{Human talent: Its return and use}, p. 172.
and business contacts these overseas mainlanders can bring. For instance, mainlanders living in Osaka, Japan established a tight link with Changshu City, in Jiangsu Province. Between 1999 and 2002, they established three companies to manufacture a material that previously had been imported but had upgraded the quality of air conditioners. If the company gets 30 percent of the domestic market, manufacturing this product domestically could save China 150 million RMB a year. The party secretary of Changshu applauded this process, saying that “importing capital is not as useful as importing brain power” (yinjin zijin bu ru yinjin zhili), while a local party secretary in that city commented that,

if we had brought these people back, it is not certain we could have used them, because currently we cannot pay them the same salaries and benefits they get in Japan. If we could use them (i.e., pay their salaries), we still could not develop (yang) them, because the equipment they need is too expensive for us to buy now. But if we let them stay overseas, and invite them back to serve the country, we can use them. This is a terrific choice and model.  

Some scientists become entrepreneurs, especially if they have a viable technology. The Chinese-Canadian Invention and Technology Association, established by a mainland professor at a university in southern Ontario, has over a hundred members. The group set up six companies in Mianyang, the second largest city in Sichuan province. “When we visit, the mayor comes to meet us, so we get lots of support. The president of the association, a very entrepreneurial type, spends half his time there each year.” They also got a Taiwanese investor to put in US$500,000, and have set up a special district for returnees in the city.

The founder of this organization is a classic example of a scholar turned entrepreneur.

His academic field is powder technology, which can be used for painting automobiles—replacing

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47 Information provided by Chen Changgui, who participated in this interview.
48 Interview in Toronto, August 2003.
spray paint, which is smelly if not toxic—or for inhaling medicine directly into the bloodstream. He has set up two companies in China to manufacture this powder. He sold the overseas rights to his university but maintains the China market for himself. But he does not plan to go back to China.\(^{50}\) “I am too established here now. I have a very good career, better than most of my colleagues in China. I have greater influence in China by being overseas than if I were in China. I am also getting a little old to go back to China, given the new emphasis on youthfulness. The possibility of me going back is not very high.” Why does he engage in such projects in China?

For three reasons: first, I really want to do something for China and the Chinese. Second, it is really beneficial to me because I get to do things that I couldn’t do here. There are limited resources in Canada. And third, I get to learn new things. I don’t do it for personal economic gain, though I can use 10% of the money from China for travel, which means I don’t use my Canadian money, but since I travel so much, I use up the money anyway.

Researchers in Sichuan Province were among three groups in China that approached him to apply for funds available only to people overseas. In fact, they wrote the proposals themselves, but needed his participation. While this helps domestic scholars to get access to money, “this is actually a way for me to get money.” In fact, in 1999, he was awarded 400,000 RMB by the Natural Science Foundation as an “exemplary young scholars” (jiechu qingnian), and since he could not take the money out of China he found local partners with whom to cooperate. This gave him the chance to establish a program in China, which helped him get ideas from China.

Finally, the government had also called on mainlanders overseas to help China find export markets. Many mainlanders in the U.S. had tried to use their personal networks back home

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\(^{49}\) Interview in Toronto, August 2003.
\(^{50}\) Interview in Toronto, August 2003.
to import goods from China. In Osaka, a former visiting scholar, who has worked in Japan for 15 years, got his employer in Japan to buy four ships from Shanghai, worth 400 million RMB.\textsuperscript{51}

In a survey conducted in 2001 among 145 individuals working in development zones in five cities in China, we found that 47 percent of the returnees who answered a question about whether they had cooperated with people in China while they were overseas, said “yes.” Among 109 academics in six cities, 35 percent had cooperated with the mainland while overseas. Finally among 82 scientists who had resettled in China, 49\% had cooperated with people on the mainland before returning. Clearly, the high rate of involvement reflects the fact that these people had returned. Nevertheless, in 1993, Zweig and Chen found that 21.4\% of 272 mainlanders interviewed in the U.S. were exchanging scholarly information with their home unit,\textsuperscript{52} while another Chinese researcher estimates that 25\% of all mainlanders in the U.S. are “serving the nation.”\textsuperscript{53}

Clearly some individuals believe that serving the country from abroad may be more advantageous than returning. One mainlander, with an excellent position in a business school in the U.S., says that when he returns to China representing his American university, he is treated very well. He may become a key channel through which people, information or capital can flow in and out of China. In his view, were he to return to China and take up a post, his status would be much lower.\textsuperscript{54}

\begin{flushright}
\textsuperscript{51} Information provided by Chen Changgui, who participated in this interview.
\textsuperscript{54} Interview by Stan Rosen in Los Angeles, 2002.
\end{flushright}
Serving China from Silicon Valley

To understand how diaspora business people promote China’s economic modernization, we employ a data set compiled by Dr. Annalee Saxenian of the University of California at Berkeley, who used contacts with immigrant associations in Silicon Valley to obtain responses from 530 Chinese entrepreneurs and employees about their links with the mainland. Among this group, 69% had come to the U.S. between 1990 and 1999, and another 19.4% came in the 1980s. The vast majority (79%) had come to attend school in the U.S. and stayed on, while another 9% had been recruited directly by American companies to come to the U.S. Not surprisingly, 89% had scientific, technical or engineering degrees, and 82% had earned their highest degree in the U.S. Two-thirds were technical professionals in non-managerial positions.

In the following analysis, we extracted two key groups whom we compare to the overall cohort. First, are those in Silicon Valley who own their own companies or who, at some point, owned a company. We assume that company owners are more entrepreneurial and more likely to engage the mainland. Second, we look at individuals who actively “serve China,” and compare them to people who are not actively “serving China” in order to better understand the “servers.”

A key issue for China is to increase the flow of technology back to China. To what extent do mainlanders in Silicon Valley exchange technology “regularly” (versus “sometimes” or “never”) with classmates, friends or business associates back in China? Among the entire group, 19% do so on a “regular” basis. However, 28% of one-time company owners do so as compared to 16% of non-company owners (figure 2). Owning a company significantly increased the likelihood that technology flows occur.

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55 We are deeply grateful to Dr. Saxenian, whose work was funded by the Public Policy Institute of California, for sharing her data set with us. Much of her analysis combined mainlanders and Taiwanese into a Greater China category, which she juxtaposed to Indians in Silicon Valley. We used only her responses from mainlanders for our analysis. Her total data set is composed of 2,273 responses by Chinese, Indians and Taiwanese. While approximately 530 mainlanders filled out the web-based questionnaire, 144 respondents did not complete all aspects of the survey, as certain questions about their links to China failed to appear on the screen while they were filling
Among people considering setting up a company in China, 23% regularly exchange technology with colleagues on the mainland, many more than those not considering setting up a company on the mainland (9%). So, technology exchanges are an important step for those in the diaspora who want to establish a new company in China.

Among the 386 respondents, 33% have helped others arrange business contacts in China, with 61% of company owners and 22% of non-owners having done so. Company owners are also a key source of information for firms in China; 32% of them having consulted for Chinese companies. Only 15% of the entire population, and only 8% of non-owners, have played this role.

Are these people an important source of capital for China? Not yet. According to the survey, among the 117 company owners, 17 (15%) have invested once in a start-up in China, while another 16 (14%) have invested more than once. Of 267 non-owners, only eight (3%) have invested in a start-up and, of those, only two invested more than once.
The “Servers”

To understand the characteristics of those who are “serving” China, we selected all the people who responded positively to four questions: these categories were drawn from the list of activities proposed by the Chinese government in its 2001 policy document cited above on “wei guo fuwu.” We then broke this group into four, based upon the number of these activities that they carried out. So, while we can compare “servers” and “non-servers,” we can also see if there are differences within the group that is serving the country. Finally, we ran a multiple regression model to see what are the most important independent variables that explain who does and who does not serve the country.

Of 386 people who answered the entire questionnaire, 179 (46%) responded positively to one of our four questions, with 100 employing one mode, 48 involved in two, 19 involved in three, and 12 involved in all four modes. This shows significant links among mainlanders in Silicon Valley and China.

What are some of their key characteristics? Age is statistically significant, as “servers” tend to be older than non-servers; in the 36-50 year-old cohort, servers outnumber non-servers by 39% versus 29%. Gender is significant, as 72% of servers are male, while only 28% are women. Among non-servers, the ratio is 59% men and 41% women. And, the percentage of women declines progressively among those who are more active. Citizenship appears to be important; those with U.S. citizenship are involved more than those holding non-U.S. passports (40% vs. 31%). Also, 40% of servers are U.S. citizens, as compared to 29% of non-servers. On the other hand, 40% of non-servers hold U.S. permanent residency (green cards) while only 30% of

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56 The four questions were: 1. Have you helped arrange business contracts in China? 2. Have you ever served as an advisor or consultant for companies from China? 3. Have you invested your own money in start-ups or venture funds in China? 4. Do you regularly exchange information with friends, classmates, or business associates about technology. For this latter question, where the choices were “never,” “sometimes,” and “regularly,” we include only people who said “regularly.” “Sometimes” could reflect casual conversations, while “regularly” suggests that some significant transfer was underway. All four questions reflect ways people helped others do business, rather than ways they promoted their own business.
“servers” have this status. Those holding MBAs and Ph.D.s are more likely to engage with China and tend to be more active than other degree holders. Looking at current jobs, those with managerial or executive positions in corporations are more likely to serve China than those with technical or other professional experience. Thus among 92 business executives and managers, 72% were serving China while only 28% were not.

The size of the firm is inversely proportional to level of engagement, as those working in small firms may need the contacts, while large firms have less need to work with China. Particularly individuals employing 10-49 people in their firm are much more likely to be serving the country than not (21.0% vs. 7.5%), perhaps because they want access to cheaper labour, while the firms least likely to “serve” are those with over 1,000 employees (54% of all non-servers versus 37% of servers).

As the Chinese government would predict, participation in professional associations makes one more likely to serve China, either because the organization encourages involvement, but more likely, because those who want to be involved with China attend such meetings. Among the most active servers (employing 2 or more modes), 41 percent attend professional meetings once or more per month, while 60 percent attend meetings at least four times a year.

Founding or running a company increases the likelihood of being a server, with full and part-time owners comprising 17% of non-servers but 47% of servers. Among servers, part-time owners are a little more active (26%) than full-time owners (21%). People planning to set up a business are more likely to serve; 60% of people planning to open a company are engaged with China versus 46% of non-servers. Also, those considering returning to live in China are more active on the mainland, perhaps building relationships that will help them after they return. Among those who say that they are “quite likely to return to the mainland,” 21.3% say that they are serving China, while non-servers comprise only 8.5% of this group. Moreover, among the 12 people who are most active, 10 of them are “quite likely to return,” which means that in future they may no longer serve from overseas. Finally, knowing people who have returned makes one
more likely to serve China—perhaps these returnees form the channels through which the servers serve.

However, while the above section describes bivariate relationships, we wanted to see the impact of all the independent variables, so we did a logistic regression, the results of which are shown in table 3. The results are interesting. First we did a multiple regression, with our dependent variable of “serving” divided into five categories—i.e., those serving in 1, 2, 3 or 4 ways and those not serving at all. Here the size of the company held up as a significant factor, as did whether or not someone founded or ran a company fulltime or part-time. But when we combined the dependent variable, making it reflect only those who served in any way and those who did not serve, gender almost becomes significant (.072), as does being a U.S. permanent resident (.091). But interestingly, having a US green card is negatively correlated with serving—while citizenship has no impact—suggesting that people who feel stable or secure in America are less likely than those with only long-term residency to help China or engage in some interactions with the mainland. Finally, when we added three more independent variables to our model—knowing anyone who had returned to China; planning to open a company in China; and planning to return to live in China, our findings changed slightly. The dependent variable we used was still dichotomous—whether they served in any way or not. Whether they know someone who has returned to China remains significant (.005), which could suggest that it is people who have friends who have returned to China who are more likely to interact with China. Once again, having a U.S. green card is statistically significant (.037), and again negatively correlated, with serving. This finding may reflect the fact that length of time, rather than immigration status, is correlated with serving. That is, people who had not been in the U.S. long enough to get citizenship and therefore only had a “green card” were less likely to serve China. Finally, in this last model, age drops out as a significant factor.
Table 3. Why People “Served” China, Logistic regression analysis

<table>
<thead>
<tr>
<th>Factors</th>
<th>Classifications</th>
<th>Odds ratio</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>female</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>male</td>
<td>1.414</td>
<td>0.187</td>
</tr>
<tr>
<td>Age</td>
<td>In 10 year interval</td>
<td>1.237</td>
<td>0.319</td>
</tr>
<tr>
<td>Current status in the U.S</td>
<td>foreigner's Visa</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>U.S. Citizen</td>
<td>0.776</td>
<td>0.453</td>
</tr>
<tr>
<td></td>
<td>U.S. Permanent Resident</td>
<td>0.542</td>
<td>0.037</td>
</tr>
<tr>
<td>Education degree</td>
<td>bachelors or below</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>masters other than MBA</td>
<td>1.015</td>
<td>0.970</td>
</tr>
<tr>
<td></td>
<td>MBA</td>
<td>1.807</td>
<td>0.267</td>
</tr>
<tr>
<td></td>
<td>doctorial</td>
<td>1.095</td>
<td>0.826</td>
</tr>
<tr>
<td>No. of employees working in company at all locations</td>
<td>&gt;499</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100-499</td>
<td>1.083</td>
<td>0.791</td>
</tr>
<tr>
<td></td>
<td>10-99</td>
<td>2.007</td>
<td>0.020</td>
</tr>
<tr>
<td></td>
<td>1-9</td>
<td>3.916</td>
<td>0.035</td>
</tr>
<tr>
<td>Involved in founding or running a start-up company</td>
<td>no</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>yes, part-time</td>
<td>3.529</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>yes, full-time</td>
<td>2.556</td>
<td>0.013</td>
</tr>
<tr>
<td>Would consider returning to live in China in the future</td>
<td>no</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>yes</td>
<td>1.375</td>
<td>0.207</td>
</tr>
<tr>
<td>Would consider moving the business to China</td>
<td>no</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>yes</td>
<td>1.293</td>
<td>0.329</td>
</tr>
<tr>
<td>Know friends or colleagues who returned to China</td>
<td>no</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>yes</td>
<td>2.141</td>
<td>0.005</td>
</tr>
</tbody>
</table>

Source: Data was collected by Annalee Saxenian, funded by Public Policy Institute of California. Data analysis by Dr. Chung Siu Fung. N = 368.
Serving China from Hong Kong

One group particularly well positioned to “serve China” are mainland academics and professionals in Hong Kong. In 2001-2002, we carried out 33 face-to-face interviews with mainland academics and a few lawyers in Hong Kong, largely to understand their current and future plans about ties between Hong Kong and the mainland. More recently, we sent all mainland academics teaching in a Hong Kong university a survey about their involvement with the mainland. We received 65 responses to approximately 420 surveys, yielding a response rate of about 15 percent. Among the total group of 98 academics, 66 percent are already full or associate professors (11% full profs); 51 percent received their degree in the U.S., with another 22.5 percent getting their degree in Canada. Thirty percent of the academics hold foreign passports, 42 percent of spouses do, and 60 percent of their children do. Many of these people have been in Hong Kong for almost a decade; 47 percent are permanent residents of Hong Kong. When asked what their plans were when they left China to study overseas, only 19 percent were “definitely returning to China” when they left, and another 33 percent said that “they were likely to return but wanted to work for a while before going back.” This suggests a strong tie to the mainland.

Almost one-third of the academics said that they would give up their teaching position in Hong Kong and move to the mainland if they could get a job at a top university there (30/89 respondents), but 63/92 people who answered the question (68%) would like a joint position, teaching and/or working in both Hong Kong and the mainland. This interest in working on the mainland should be a strong motivating force to “help the motherland.” High salaries—often needed to fund their children’s college overseas—is the first reason that they want to stay in Hong Kong (23.5%), as is job opportunity (28%); but good research opportunities (12%) are important as well. In terms of their professional networks, their ties are still stronger with the West—only
23% said that their ties to the mainland were “stronger” or “much stronger” than their ties with the West (38%), but 35 percent said that their ties to both regions were about the same. Yet, 54 percent of respondents reported that since moving to Hong Kong their level of interaction with the mainland had “increased a lot” and 35 percent said it had “increased.” Only seven percent said that it had not changed at all.

We asked people about the type of contacts they had on the mainland, which reflects their involvement in “serving the nation.” They could select as many choices as was appropriate. Table 4 shows the percentage of responses for each of the different forms of interaction. Thus “running seminars” and “collaborative research projects with mainland scholars” were the most commonly selected forms of interaction. Running seminars is quite lucrative for teachers, especially if run through business programs. Many people were also training mainland students.58

Table 4. Ways you have interacted with the mainland in the past five years

<table>
<thead>
<tr>
<th>Modes of Interaction</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborative research projects with mainland scholars</td>
<td>66.3</td>
</tr>
<tr>
<td>Running seminars or mini-courses in China</td>
<td>67.3</td>
</tr>
<tr>
<td>Training mainland students here in Hong Kong</td>
<td>63.3</td>
</tr>
<tr>
<td>Visit family regularly</td>
<td>61.2</td>
</tr>
<tr>
<td>Giving academic papers in the mainland</td>
<td>38.8</td>
</tr>
<tr>
<td>Editing a book with another mainland scholar</td>
<td>16.3</td>
</tr>
<tr>
<td>Consulting with mainland or foreign companies on the mainland</td>
<td>5.1</td>
</tr>
<tr>
<td>Other connections with the mainland</td>
<td>6.0</td>
</tr>
</tbody>
</table>

N= 98

57 One needs to live in Hong Kong for seven years before they can apply for PR status.
When asked whether their collaborative projects are mostly with scholars on the mainland versus those overseas, we can see the strong trend towards doing projects with colleagues on the mainland (table 5). Including those who did not respond, 37% said that “almost all” or “most” of their projects were with scholars organizations on the mainland, and another 19% carried out half their projects with people or organizations on the mainland.

**Table 5. Collaborative projects with scholars or organizations overseas or on the mainland for Mainlanders in Hong Kong**

<table>
<thead>
<tr>
<th>Location of Projects</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almost all on the mainland</td>
<td>5.1</td>
</tr>
<tr>
<td>Most on the mainland</td>
<td>23</td>
</tr>
<tr>
<td>About half on the mainland</td>
<td>20</td>
</tr>
<tr>
<td>Some on the mainland</td>
<td>23</td>
</tr>
<tr>
<td>Only a small percentage on the mainland</td>
<td>5.1</td>
</tr>
<tr>
<td>No collaborative projects</td>
<td>14.3</td>
</tr>
</tbody>
</table>

*Source: Interviews in Hong Kong, 2001-2002, 2004 N=98*

Channelling research money from Hong Kong institutions to mainland scholars, institutions and researchers is another way that mainlanders in Hong Kong can help the mainland. Some mainland universities impose overhead on grants, making international exchanges a source of administrative funding. While only 14 percent reported holding no projects, only 48 percent of people (50/98) reported the share of funding that went to the mainland. Interestingly, the vast majority of the funds actually stay in Hong Kong.

**Table 6. Percent of Funds in Key Project Going to the Mainland from Hong Kong**

<table>
<thead>
<tr>
<th>Percent of Project Funds Going to the Mainland</th>
<th>Percent of Interviewees</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 percent</td>
<td>17</td>
</tr>
<tr>
<td>75-99 percent</td>
<td>12</td>
</tr>
<tr>
<td>50-74 percent</td>
<td>14</td>
</tr>
<tr>
<td>25 – 49 percent</td>
<td>24</td>
</tr>
<tr>
<td>Less than 25 percent</td>
<td>33</td>
</tr>
</tbody>
</table>

*Source: Interviews with mainlanders in Hong Kong, 2001-2, 2004 N= 51*
Still, mainland academics working in Hong Kong universities are contributing to the funding of research on the mainland.

Finally, we asked people the three most important reasons why they helped China. Was it out of self-interest or did they feel an important need to affect China in some important way? We did not ask this question in our original face-to-face interviews, nor in our initial email mailing of the survey, but on the suggestion of a mainland colleague, we included this question in subsequent requests for responses. The data, nonetheless, as displayed in Table 7, are revealing.

**Table 7. Three Most Important Reasons for Cooperating with the Mainland**

<table>
<thead>
<tr>
<th>Reasons for Cooperation</th>
<th>First Choice</th>
<th>Second Choice*</th>
<th>Third Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs of research are cheaper on the mainland</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Quality of collaborators are excellent</td>
<td>4</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>I study China, so I need to collaborate with the mainland</td>
<td>14</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>I want to bring new information into China</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>I want to promote the quality of research in China</td>
<td>12</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>I want to attract good graduate students to Hong Kong</td>
<td>5</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>I want to establish personal relationships</td>
<td>4</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>I want to be more visible in the mainland</td>
<td>1</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>I want to make China stronger</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>I want to gain access to research money</td>
<td>0</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

*Source: Interviews with mainlanders in Hong Kong, 2001-2, 2004.*

*Notes: N=48, if people selected more than one response, we counted their responses twice. Some people did not make a second or third choice.*

Above all, mainlanders in Hong Kong want to promote the quality of research on the mainland, a view articulated by a mainland scientist, who felt that improving research on the mainland was a key function mainlanders in Hong Kong could perform and one which motivated many of them.

Clearly, he was correct. Getting good graduate students is also a strong motivation for working with the mainland, as is establishing good networks, which help with research and attracting students. Finally, mainlanders want to make China stronger.
The “Diaspora Approach:” An Option for China?

In the eyes of the world scientific community and people who study the brain drain, the “diaspora option” has important advantages. It is relatively inexpensive, allows expatriates to contribute to their home society without giving up their overseas situations, and yet, mitigates feelings of guilt. But if the domestic scientific community is not large, it cannot support links with overseas researchers. “Sustained political support and an administrative capacity to manage the network are essential. And even with this support, ensuring the long-term survival of a diaspora network is a serious challenge since its population is very mobile, and may not always focus on national science and technology interests.”

Government agencies and expatriates must be highly motivated, and updating of lists of expatriates abroad are necessary.

Can the “diaspora model” succeed in China? Relative to African and Latin American countries, China’s large indigenous and relatively developed scientific community allows for very fruitful interactions for people abroad. Mainlanders working overseas have much to learn from collaborators in China, and even though they themselves may be doing cutting edge research, Chinese colleagues can help move the research into new arenas. One professor in the diaspora commented that colleagues in China helped propel his research; moreover, he got access to high quality graduate students and research assistants in the mainland who were more stable and less expensive than graduate students in Canada, including mainland graduate students who he brings to Canada. Second, China’s booming economy in China means that those who bring back a new technology can make a lot of money; but the result for China is the transfer of some expertise of new technology. Third, globalization of scientific techniques and the positioning of many Chinese in leading research centers in the West means that they have a lot to share with China. Finally, China is not so poor; it can pay salaries and research costs incurred by scientists or academics, who return for shorter periods of time.

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57 Gaillard & Gaillard, “Can the scientific diaspora save African science?”
58 ibid.
The Chinese government seems unconcerned about the private and monetary motivations of many who “serve” China. The 2001 document encourages people to set up companies as away of “serving the nation.” No doubt, these people are, first and foremost, serving themselves; otherwise, they would take their business elsewhere. But as Chinese, and former or current citizens of the PRC, they are more favourably disposed to “serving the nation.” Similarly, the views of China’s leaders has evolved; their goal is China’s modernization and a stronger state, and whatever causes overseas mainlanders to contribute to that goal is not the state’s primary concern. Whether the motivation, is socialism, patriotism, or self-interests, the state simply wants the information and technology.

Yet it remains unclear how well organized the Chinese government is on this issue. According to some observers, the home country must establish a strong network among overseas scholars if it is to get them to consider returning.\(^6^2\) Interviews with consular officials in Canada, suggest that China does not have a rich data bank of overseas mainland scholars and the state’s agents do not actively pursue them. In light of the growing cases of industrial espionage that have occurred in the U.S., these officials may prefer to play down their own activities.\(^6^3\) Yet the attractiveness of the Chinese market may be enough to draw the interest of so many overseas mainlanders. Moreover, individual cities, such as Shanghai, are trying to mobilize its universities’ alumni associations abroad.

Despite the significant “reverse brain drain” that is currently underway, many of the mainland’s top researchers and entrepreneurs currently living in the diaspora are not prepared to return home. The longer one stays abroad, the more difficult it is to return. Family obligations and professional affiliations are not easily set aside. The “diaspora option,” of building a transnational scientific community therefore becomes one more way in which much Western technology can

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\(^6^1\) Meyer, et. al., “Turning Brain Drain into Brain Gain.”

\(^6^2\) Hah-Zoong Song, “Networking lessons from Taiwan and South Korea,” SciDev.Net (May 2003), @ www.scidev.net/dossiers/index.cfm.
flow into China and help build a strong China through science and education. It also becomes an important way by which mainlanders who remain overseas can profit from the growing Chinese market economy. And finally, as China’s science and technology continues to advance, the benefits to the West of these types of exchanges will expand as well.

63 One consular official in Canada responsible for science and technology said quite amazingly that he had never heard of the policy of “wei guo fuwu.”