Transnational Mobility, Social Embeddedness, and New Institutions: The Return of Chinese Engineers from the U.S.

Fei Qin
Sloan School of Management
Massachusetts Institute of Technology

Abstract

This paper examines how social processes affect the decisions of Chinese engineers in the U.S. to return to China and their experience as returnees. The analysis is based on three pieces of data: quantitative data from a survey of a group of Chinese engineers in Boston regarding their plans to return, qualitative data from in-depth interviews with both returnees in China and migrants who are still in the U.S., and qualitative data from interviews with various types of institutional actors involved in the return migration processes. The study finds that return migration is often associated with entrepreneurship. This pattern reflects migrants’ perception of the opportunity structure in China. A mixture of opportunities and constraints that exist in China often leads engineers to return for technology entrepreneurship. Moreover, in contrast to the conventional wisdom that often views the migration of highly skilled workers as a highly individualized process, the study finds that return is not a lonely journey. It is very often a group process instead of an individual process. Returnees/potential returnees draw heavily upon the ties with other migrants that have been established during the migration process. The decision to return is often not made by isolated individuals, but made collectively by the group of people who go back to China as a team. In addition to interpersonal ties, various types of voluntary migrant associations serve as important intermediaries between migrants’ communities and gatekeepers in China.

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Introduction

This paper looks into the mechanisms underlying the return migration of Chinese engineers from the U.S. Although it focuses on a particular migration stream, it does so in the context of a much broader debate in public policy and scholarly literature on the geographic mobility of highly skilled labor.

The increasing mass movement of professional and technical workers from developing countries to industrialized countries during the past two decades has rekindled the debate over highly skilled migration, which used to center around the notion of brain drain. Highly skilled migrants are usually defined as having tertiary education. The World Bank estimates that the stock of educated immigrants has increased by about 8 million between 1990 and 2000, and the percentage of skilled workers among immigrants increased from 29.8 percent to 34.6 percent. In 2000, the number of migrants with tertiary education living in the OECD countries amounted to about 20.4 million (Docquier & Marfouk, 2005). Many have emigrated from former communist countries that re-entered the world economy after the Cold War. Although the mass emigration from mainland China only started after 1978 when China launched the “open door” policy (Zhang, 1992), over 800,000 mainland Chinese have gone abroad to study (Wang, 2004). China now takes the second place among sending countries of skilled immigrants to the U.S.

Recent empirical studies have found that skilled workers’ migration from developing countries to industrialized countries is shifting from a one-way brain drain to a two-way circulation (Saxenian, 1999, 2002; Kapur, 2001; Martin, 2003). These workers either repatriate or build extensive ties to their home countries and bring back

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1 The circulation of migrants through the United States is not unprecedented. For example, a large share of unskilled immigrants before the First World War later returned home. But circular migration has rarely been observed among skilled migrants from developing countries to industrialized countries.
financial capital, knowledge, skills, and business ideas with them. As a good example of such a trend, overseas Chinese contributed over 70% of the foreign direct investment in China between 1985 and 2000 (World Bank, 2005).

The two-way flows of skilled labor have provoked many spirited academic and policy debates on the highly skilled migration in today’s context. A lot of efforts have been devoted to estimating the magnitude of the migration flows and evaluating the impacts on home and host countries’ development (Kapur, 2001; Pellegrino, 2001). Although there is a widespread belief that liberalizing the transnational movement of skilled labor, if properly managed, could result in a win-win-win situation for the sending countries, receiving countries, and migrants themselves (Kapur, 2001; Pellegrino, 2001), how exactly this potential can be realized is still not adequately understood. The existing academic research and policy discussion on the migration of highly skilled workers usually take place at a high level of aggregation. The literature has not developed a rich understanding of the inner dynamics of these migration flows. Questions such as who exactly returns, returns for what, and under what circumstances are likely to be more complex than acknowledged in the existing literature.

The purpose of this study is to understand the micro processes of the return migration of Chinese engineers – what is the interplay of individual decisions, social processes, and institutions in return migration. I analyze this question by connecting the career with the system. I suggest that migrants’ interactions with other players in the system and their responses to the opportunity structures in the host and home countries are key to understand the mechanisms of return migration.
The paper proceeds as follows. The first section reviews the theories of international migration. I suggest that while the human capital approach that dominates the discussion of international migration has contributed substantially to our knowledge of the variation of migration behavior across skill categories, it offers limited implications for the differentiation among a homogeneous group of people with regard to human capital characteristics. Building on the literature of the micro-processes of low-wage migration, the paper develops two-fold arguments: First, migrants’ decisions on returning reflect the interplay of their individual characteristics and the opportunity structure in the home country. A mixture of opportunities and constraints that exist in China affects migrants’ decisions to return and their careers after they return, which often leads those with an engineering background to return for technology entrepreneurship. Second, the decision to return is also affected by a web of social relations where migrants are embedded. The return migration of highly skilled workers is not necessarily an individualized action, but is supported by a whole set of social infrastructures.

The second section describes the multiple types of data collected for the analysis, including quantitative data from a survey and qualitative data from fieldwork in the U.S and in China. A survey of Chinese engineers in Boston serves to identify whether there are any systematic patterns with regard to who decide to return and under what circumstances. Data from semi-structured open-ended interviews with migrants in Boston and returnees in Beijing, Guangzhou, and Shanghai, as well as a variety of institutional actors, are used to understand the mechanisms underlying these patterns.

The next three sections report the findings from data analysis. The analysis starts from migrants’ decisions on returning to China, by looking into a range of factors that are
often neglected in prior studies, such as entrepreneurship experience and social embeddedness. The survey data yields some interesting results that depart from the conventional wisdom. The key findings are two fold. Firstly, among a group of Chinese engineers who have very similar educational background, plans to return are not correlated with the length of time in the U.S. Instead, migrants with higher earnings in the U.S. and less difficulty with their professional and technical skills are more likely to consider returning. A close look at their work experience shows that the decision to return is highly associated with entrepreneurship. Secondly, contacts with co-ethnics in and outside workplace are highly associated with the decision to return to China.

A clearer explanation emerges from the interviews that ground the qualitative dimension of this study. The self-selectivity of return migration reflects migrant engineers’ responses to the particular opportunity structure in the home country. A mixture of opportunities and constraints that exist in China creates different niches for returnees, which often leads those with an engineering background to technology entrepreneurship. The paper then explains why this opportunity structure comes into existence.

The next step of the analysis probes further into the return processes. In contrast to the conventional wisdom that depicts the migration of highly skilled labor as highly individualized, the study finds that return to China is not a lonely journey: very often the decision to return is not made by isolated individuals, but it is a collective choice made by the group of people who go back to China as a team. The connections among team members are established in the process of migration, usually in the U.S., among people who have had little previous contact in China. It is also facilitated by a set of formal
organizations, which emerge in the migration process for both cultural and instrumental purposes. The Chinese government responds to the immigrants through these organizations, rather than directly to them as individuals when they return to China. This yields a very different picture of the Chinese government from the conventional view of the State as a distinct bureaucracy independent of civil society.

The paper concludes by suggesting future directions to move this study forward.

**Theories and Arguments**

Two bodies of theories have dominated the discussion on why people migrate across national borders. The economic approach centers around the human capital characteristics of migrants (Borjas, 1987, 1994; Borjas & Bratsberg, 1996). Individual’s response to monetary incentive is key – people move to find employment and remuneration more appropriate to their formal education and training. There is little room for the role of institutional and social factors. These models suggest that return migration is not random (Warren & Peck, 1980; Borjas & Bratsberg, 1996; etc.). There are three perspectives about the selectivity of return migration. The negative-selection argument claims that those who are less successful in the host country labor market tend to return. Return migration flows result from “mistakes” in initial migration decisions, and those who could not make it in the host country are forced to leave. The prediction is that returnees are disproportionately drawn from the less skilled and less successful of their arriving immigrant cohort (DaVanzo & Morrison, 1981; Lam, 1986; Blejer & Goldberg, 1980; Beenstock, 1996; Cohen & Harverfeld, 2001). The second perspective views return-migration as a result of the realization of pre-determined saving goals (Stark &
Bloom, 1986). The third theory incorporates both motives for return migration. It treats the discrepancy in the expected returns on skills between source countries and host countries as the key determinant of the direction of migration flows (Borjas, 1990; Ramos, 1992; Borjas & Bratsberg, 1996). Empirical studies have shown mixed evidence for these theories. Studies of the emigration of Jewish immigrants from Israel have found that the propensity of emigration is closely related to the unfulfilled expectations in host country’s labor market (Blejer & Goldberg, 1980; Beenstock, 1996; Cohen & Harverfeld, 2001). In contrast, using the U.S. census data, Jasso and Rosenzweig (1990) found that education level, used as a measure of skill level, is positively connected to return migration for certain groups of people but not others.

These models are very helpful to explain why migration decisions differ among a heterogeneous population with regard to the aggregate measurement of human capital characteristics. But they are less helpful for us to understand why, among a group of people with similar education background, some return but others do not. Today’s labor market is characterized by an increasingly high degree of labor division, and the types of skills are most diverse in the highly skilled labor force. Great variations exist in specialization among those at the same general skill level, as usually measured by years of schooling in the human capital model. The more education a person receives, the more likely she is to be specialized in one field but not others. Consequently, the rewards for skills are not likely to be identical at the same level of schooling, particularly in economies that are developing fast and where certain types of skills are in a greater demand than others. While there remains a huge gap in engineers’ salaries between China
Fei Qin, MIT Sloan School of Management

and the U.S., technology-based entrepreneurial activities can be as rewarding in China as in the U.S.

Moreover, it is more than skill that matters. Researchers studying how individuals get jobs in firms have suggested that studying individual characteristics or market-level aggregates, like wages, is not enough; we must understand the organizational or occupational structure through which individuals move and how the types of jobs available at given wages match the skills of individuals looking for work (Baron and Bielby, 1980; Reskin and Roos, 1990). In our case where individuals decide whether to participate in a national labor market, the match between a person’s skill and the opportunity structure that she faces could be key to mobility. Researchers who study the causes of brain drain in 1970s and 1980s also have suggested that economic, social, and political conditions in the host and home countries, as well as policy interventions, are important to understand the international mobility of skilled workers (Bhagwati & Hamada, 1974; Bhagwati, 1996; Bhagwati & Wilson, 1989; Goss & Lindquist, 1995). Therefore, identifying which types of skills are most rewarding requires a careful examination of the opportunity structures in specific countries, which are often shaped by labor market institutions and policies, in addition to social and economic conditions.

Social embeddedness is another important theme in the migration literature (Portes & Sensenbrenner, 1993). Prior research in this vein has suggested that networks between existing and potential migrants can reduce information and psychological costs involved in migration and enhance new migrants’ employment opportunities. Empirical evidence on the migration of low-waged workers has shown that “chain migration” is often promoted, facilitated, and perpetuated by social networks (MacDonald &
MacDonald, 1964; Boyd, 1989; Massey, 1990; Massey, Gonzalez, & Durand, 1994). Meanwhile, studies on low-wage workers’ host country labor market adaptation, in particular research on ethnic enclaves and ethnic niches, have also found that the rate of entrepreneurship among migrant groups is much higher than that of natives, because opportunities for new migrants to find a regular job in the host country are restricted. The lack of access to regular jobs often leads migrants into ethnic enclaves or certain occupational niches (Zhou, 1990; Waldinger, 1996). It is also suggested that co-ethnic ties, in particular family and kinship ties, are the major channels through which new migrants enter ethnic enclaves or ethnic niches (Piore, 1979; Sessan, 1995; Waldinger & Lichter, 1997; Waldinger, 2001; Waldinger & Der-Martirosian, 2001).

Within the migration context, the literature on labor market processes and migrants’ careers has primarily focused on the migration of low wage or low skilled workers. When it comes to the return migration of highly skilled workers, the literature has yet to develop a strong social and institutional component. Building on the literature of the micro-processes of low wage or low skilled migration, the central arguments of this study are two fold. First, a mixture of opportunities and constraints affects migrants’ decisions to return and their careers after they return, which often leads those with an engineering background to return for technology entrepreneurship. Second, the return migration of highly skilled workers is not necessarily an individualized action, but is supported by social infrastructures, which include informal networks and formal institutions. Prior studies have shown a very clear picture of social networks in low wage migration. The standard picture of that process is: migration takes place in social networks. Those networks are important to the migration process itself and to finding
jobs in the host country. In the early stage of migration they are key to success. But in the later stages they become a trap. Migrants that are successful break out of these networks and integrate into the mainstream society. The story about highly skilled migration which emerges from my research is almost the mirror image of the received wisdom about low-wages migration. In an earlier study of the settlement processes of Chinese engineers in Boston (Qin, 2005), I find that people migrate as individuals and find their initial jobs through formal contacts, such as those contacts established through universities. But as they stay, they gradually form social ties, and these ties become increasingly dense, and are critical to successful upward mobility in the U.S. In this paper I argue that these networks also matter in return migration. The ties with co-ethnics help migrants make decisions about going back to China and facilitate their movement when they actually return.

**Data and Methods**

The empirical studies of return migration usually use large-scale datasets, very often national census data. These data, although good in representativeness, provide only rough measurements of skills and labor market experiences.

In order to capture both the individual, and the social and institutional dimensions of return migration, this study collected data through multiple methods, including a survey, in-depth interviews, and participatory observations. Around two hundred Chinese engineers in Boston were surveyed regarding their plans to return to China. The survey collected systematic information on migrants’ plans of return, education and work experience, and career trajectories, etc. In-depth interviews were conducted with Chinese engineers in Boston, returnees in three major destination cities of return migration –
Beijing, Guangzhou, and Shanghai, and a variety of institutional actors, such as employment agencies, migrant associations, companies, and governments. The data collection also involved participatory observations by the author attending a number of formal and informal activities of the major Chinese professional associations in Boston and Chinese government-initiated events related to return migration in Boston, Beijing, Shanghai, and Guangzhou from 2003 to 2005.

**The Survey**

Subscribers of two major associations of Chinese engineers were surveyed regarding their decisions to return to China. I selected those who were first generation immigrants from Mainland China. The final sample includes 150 observations. By looking at both migrants who may return and those who may not return, we are able to avoid the bias of sampling around dependent variable. This bias is often seen in return migration research where only those who already returned are studied. The survey gathers information around the following five key variables:

**Dependent Variable – the Plan of Return to China**

This variable is constructed based the question “do you plan to move back to China in the next 5 years?” Respondents are asked to choose from yes, no, and have not decided.

**Explanatory Variables and Controls:**

In addition to the two variables that are usually used as explanatory variables in return migration analysis – skills and wages, we also collect data in other dimensions that
may also lead to the variation in return decisions but have rarely been analyzed in the literature.

**Education and Work Experience:** Educational attainment includes both home country education and host country education. So does work experience.

**Entrepreneurship Experience:** Entrepreneurship is one of the key explanatory variables. Instead of asking respondents to evaluate their own interest in entrepreneurial activities, the survey asks them to state whether they have been involved in entrepreneurial activities.

**Ratio of Co-Ethnic Colleagues in Workplace:** This variable is included to measure social embeddedness in a migrant’s workplace. Respondents are asked to roughly estimate the proportion of Chinese colleagues in their immediate work environments.

**Ratio of Co-Ethnic Friends Outside Workplace:** This variable is included to measure social embeddedness outside a migrant’s workplace. Respondents are asked to roughly estimate the proportion of Chinese friends with whom they socialize after work.

**Challenges Faced in the Current Career Stage:** In this category are a set of variables measuring the obstacles that migrants face in their careers, including language, culture difference, social and communication skills, professional and technical skills, immigration and visa policies, and discrimination. Respondents were asked to evaluate each of these possible obstacles with a score ranging from 1 (not important) to 5 (most important).

**Immigration Status:** A dummy variable of immigration status is constructed to capture whether a person has permanent residence in the U.S., either with citizenship or a
Green Card. Most of the respondents without permanent residence status in this case are holders of H1-B visa, an employment-based visa for skilled workers.

**Interviews and Participatory Observations**

Interviews were carried out with three types of people and organizations: a) thirty-five interviews with Chinese engineers in Boston about their plan to return to China and the preparation for the potential move, b) thirty-two interviews with returnees from the U.S. in Beijing, Guangzhou, and Shanghai, and c) interviews with institutional players involved in return migration, including twelve migrant professional associations, five returnee associations, three alumni associations, two recruitment agencies, and six companies, as well as government agencies such as the Chinese Service Center for Scholarly Exchange, the Ministry of Science and Technology, and the Ministry of Education.

The interviews with individual migrants/returnees lasted for one hour on average, which covered the complete career history since college graduation and the stories behind each move. Emphasis was placed upon pre-migration and post-migration education and work experience, the motivation of return, the means of obtaining job and business information in China, and the comparison between pre-migration and post-migration career performance and job satisfaction. The interviews of the institutional actors were carried out at multiple levels within the organizations. From 2003 to 2005 the author attended most of the activities of the major Chinese professional associations in Boston, such as New England Chinese Information and Network Association (NECINA), Sino-American Pharmaceutical Professional Association (SAPA), and Overseas Chinese
Entrepreneurs Association (OCEAN), including conferences, meetings of operation teams, and informal social events. On-site and telephone interviews were conducted with relevant organizations in China in 2005 and January 2006.

**Who Returns?**

Table-1 summarizes the basic demographic characteristics of the sample. The age of the respondents ranges from 23 to 55. Over 95% of them entered the U.S. after 1980 and the majority came with a student visa. All had completed college education before migration and the majority of them received advanced education in the U.S. – about 70% received a master’s degree from a U.S. university and over a quarter received a doctorate from a U.S. university.

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The high ratio of advanced education attainment in the U.S. reflects another important trend associated with the increasing skilled migration— the internationalization of higher education (Iredale, 2001). Data from the National Science Foundation (2001) shows that from 1988 to 1996, Chinese students earned 7.5% of all science and engineering doctorates offered by U.S. universities (16,550 out of 219,643). In our sample, there is an interesting feature of the initial purpose of migration. Most people came to the U.S. for education instead of employment. The tradition among Chinese to pursue advanced education abroad has occurred for a number of reasons. A western degree is not only necessary for employment in certain high skilled professions in the U.S., but also highly valued in China and often viewed as a ticket to better employment
after returning to China, whether in domestic companies or in multinational companies. In this case, migration to the advanced countries is frequently a planned move in order to accumulate human or material capital.

Figure-1 presents the distribution of return migration plans. It shows a great variation within the group: One third of the respondents plan to return to China in the next five years. Another one third plan to stay. The rest have not decided yet.

In the discussion of migration and return migration, legal immigrant status has often been used as an approximation of the permanent or temporary nature of migration. However, in today’s more globalizing labor markets for highly skilled professionals, the flows of labor are more fluid than ever before, and the distinction between permanent and temporary residency has lost its prominence in predicting the actual duration of migration. From Table-2 we can see that permanent resident status (Green Card or citizenship) does not necessarily mean that the migration is permanent, and temporary residence status (mostly H1-B visa) does not necessarily mean that the migration is temporary either. It is worth noting that the labor flows are so dynamic that return can be reversed too. In fact, people often seek permanent residence not because they plan to stay in the U.S. for the rest of their lives, but precisely because they plan to return and want to keep the option of working in the U.S. in the future. The pursuit for permanent residence
is also related to the fact that a significant proportion of return migration involve entrepreneurship. Due to the high risk of entrepreneurial activities, permanent residency in the U.S. is often regarded as a backup if the return does not turn out a success.

Figure-2 shows plans to return by income level. Although the percentage of respondents who have a plan to return does not vary significantly across income levels, the percentage of those who decide not to return is much lower in the higher income categories. For those who earn less than $60,000 a year, almost half plan not to go back to China in the next five years, while for those who earn more than $100,000 a year, only about a quarter plan not to return.

Furthermore, prior studies have suggested that people’s decisions on migration are not only affected by material returns, but also by non-pecuniary factors such as identity and sense of self-fulfillment (Zhang, 1992). In the survey, the respondents were asked what proportion of those that they worked with on a daily basis were Chinese. This is an important indicator of the degree of assimilation in the host country labor market. In contrast to the conventional wisdom that migrants less integrated into the host society tend to return, the data shows no evidence of such a negative selection (Figure-2). Among those who work in a nearly-all-Chinese workplace, about sixty-five percent decide to stay in the U.S. and only ten percent consider going back. On the contrary, for those who are the only Chinese workers in their workplace, only twenty percent decide to stay in the U.S. and one third plan to return to China in the next five years.
Although this looks counter-intuitive at first glance, it reflects the importance of social embeddedness. It is well established in migration literature that co-ethnic networks and communities serve an important function in providing cultural and emotional support to immigrants in the host societies. This is particularly true for those who did not leave China until college graduation and thus had been deeply influenced by the Chinese culture and values. A posting in one of the most popular overseas Chinese internet bulletin boards, where thousands of Chinese professionals and graduate students in the U.S. share information and exchange ideas everyday, described how they felt about working in a place lacking people similar to themselves.

Do you know when was the moment I finally made up my mind to go back (to China)? That was one of those afternoons during the tea time when my colleagues were having great fun making some “American jokes” and I was the only one who had nothing to say. This was not the way that I want the rest of my life to be, even that I could earn much more if staying here. The feeling of loneliness in a crowd is unbearable.

This posting elicited 121 responses expressing similar experiences and feelings.

To estimate the effects of all of the factors that we have discussed above simultaneously, an ordered logistic regression model was conducted to examine the determinants of the decision on return migration. The results are presented in Table-3.
Among the quantitative findings, some are consistent with the conventional view. The results point to a positive selection story. Among this group of Chinese engineers, it is not those that could not make it in the U.S. who are forced to leave. Instead, those decide to go back to China are doing well professionally. There are two pieces of evidence. One is the positive relationship between income and the propensity for return. The other is the fact that those with less difficulty in professional and technical skills are more likely to consider returning. This result is consistent with the optimal residential location plan argument.

However, other findings reveal some patterns that are quite distant from the conventional wisdom. Among these findings, most surprising ones are the following. Firstly, age and migration duration are not crucial in predicting the intention to return. Instead, entrepreneurship is critical. Those who have tried to start up their own business are more inclined to return. Our explanation is that this reflects the interplay between migrants’ individual characteristics, especially work experience and career orientation, and the specific opportunity structure that exists in China.

Secondly, people with smaller fraction of co-ethnics among their immediate colleagues are more likely to consider returning. This pattern demonstrates the importance of social embeddedness and corroborates the story mentioned earlier; despite the greater potential for assimilation that such an environment might have, it appears that among skilled workers the shortage of meaningful interpersonal ties with co-workers and the feeling of cultural alienation predominates. In at least one sense, migrants' employment relations are embedded in their social relations: controlling for things like income and skills, such workers still positively value opportunities to interact with others.
with the same background. On the other hand, the decision to return is positively
associated with the proportion of Chinese friends in one’s social circle (outside
workplace). Contacts between migrants have been proved, in previous migrant studies, as
constituting an important source of social capital, which provide information bases and
supporting mechanisms for migrants’ initial migration and settlement in the host country.
The result here indicates that, when migrants return, co-ethnic networks also matter.

**Technology Entrepreneurship – Creating Their Own Niche**

A clear explanation of these findings has emerged from the qualitative
material. My interview data reveals that migrants’ decisions to return actually reflect
their perceptions of the opportunity structure that exists in China. Migrants are usually
well informed of what opportunities and what constraints are out there if they return.

One of the interviewee spoke to this point.

Thanks to the internet technology, all kinds of information are available in cyber space.
I read Chinese news everyday. I also call my friends who already returned to find out
how things are going there.

Prior to mid-1990s, very few Chinese migrants returned. Since the second half
of the 1990s, the continuing rapid growth in the economy has aroused a “new Chinese
dream” among overseas Chinese and started to attract them to go back. A mixture of
opportunities and constraints that exist in China has created different niches for
returnees. For those with an engineering background, the niche is often technology
entrepreneurship. Unlike academics and the expatriates of multinational companies,
many returnees with an engineering background go back to start their own business instead of getting a salary-earning job. This happens for a variety of reasons.

The gap in technology between China and the U.S. has become both a constraint for returned engineers to find employments in domestic companies and an edge for them to start on their own. The high tech boom in the U.S. in the 1990s, especially in information technology sectors, has attracted a significant number of Chinese engineers into these fields, where they have worked with the cutting-edge technologies. The skills they possess are often too specialized or too advanced for the existing industry structure in China. There is very little place in the existing structure for the returnees to use their skills. It occurs very often that returned engineers find themselves hard to get jobs suitable for their skills.

Mark Li is one of those who returned to China with the hope to use his technical skills. Mark went back to China after obtained a Master’s Degree in Math and CS and worked 6 years for a big database company in U.S. His first job back in China was a project manager in a software company. However, he quitted after one and a half years.

Being the only returnee in the company, you were given unreasonably high expectations, for example, to achieve something big within a few months. However, what you could do was so much determined by what was already there and whom you were working with. You were simply not in the position to do that.

Then he realized that what he could use was actually his language skill and the understanding of the culture and market overseas, so he joined an import and export company and planed to start his own import and export company in a couple of years, after having accumulated enough business connections.
Some other returnees have managed to use their technical skills and successfully created a space for themselves in the economy by starting their own businesses. The skills and technology returnees possess are not widely diffused in China. In many cases, returnees are in the position of becoming technology leaders. As a well-known example of returnees’ leadership position, China’s high-speed internet infrastructure was built under the lead of a group of returnees from overseas. In a study by Vanhonacker, Zweig, and Fung (2005), they also find that technology brings people back: eighty percent of the returnee entrepreneurs in their study have a technology that is new for China, giving them a significant competitive advantage in the domestic market.

In addition to the constraints and opportunities generated by the development stage of China’s high tech industry, returnees also become entrepreneurs to bypass certain social constraints. John Yang explained why he chose to start up his own firm instead of working for big companies.

There are a lot of politics in large companies here. Perhaps I should call it the Chinese corporate culture. It is not bad, it is just different. I left China in my early 20s. I spent more than 20 years in the U.S. I thought I didn’t change but actually I did, in many ways – the way I think and the way I interact with my colleagues. It took me such a long time to adjust to the American culture. At the age of 46, I don’t think it is worth doing a second time. I’d rather make it simple, to be my own boss, and concentrate on the real valuable stuff.

Consistent with this story about constraints and opportunities, the central, provincial, and municipal governments in China have launched a whole set of policies encouraging returnees’ entrepreneurship activities. These policies range from tax exemption and free office space to direct investment of government funds. There are
more than a hundred entrepreneurship parks solely for returnees across China. In the
Zhongguancun Science and Technology Zone in Beijing alone, over 6,000 companies
were founded by returnees from overseas.

Interviews with government authorities have revealed two primary reasons why
they favor technology-based entrepreneurship among returnees. First, it is the best way
to ensure that the technology and skills that returnees possess could be effectively
transferred. Second, China is a labor-surplus country. Even in engineering, each year
thousands of domestic-trained college graduates have difficulties in finding jobs. Under
this circumstance, someone who can create employment is much preferred by the
government to someone who competes for employment.

These patterns are in line with some observations of researchers who study labor
market processes outside of the migration context. Prior studies have shown that the
macro-structural characteristics of organizational environments, i.e. a firm’s product
and output market, influence the outcomes in the labor market (Brittain & Wholey,
1991; Fujiwara-Greve & Greve, 2000). Researchers have also found that firms’
locations within the social structure of an industry mediate the relationship between
macro-level characteristics of industries and individual careers (Phillips & Sørensen,
2003). Here, too, we see that, when Chinese engineers return to China, the structure of
the industries and the positions of various types of firms in that structure affect
returnees’ careers.
Return Is Not a Lonely Journey

The interviews further show that migrants or potential returnees do not respond independently to the opportunities and constraints that exist in China. Return migration is very often a group process than an individual process. They draw heavily upon the social ties that they have established during the migration process. Most of these ties are developed post migration.

Social networks have been demonstrated to be critical in facilitating the initial migration, as manifested in the chain migration of low skilled workers (MacDonald & MacDonald, 1964; Massey, 1990; Massey, Goldring, & Durand, 1994; Greenwell, Valdez, & DaVanzo, 1997). In addition, sociologists studying labor market processes have shown that informal social networks are not only important in connecting job seekers to potential employers (Granovetter, 1974; Lin, 1982, 1990; Fernandez & Weinberg 1997; Yakubovich, 2005), but are also critical for the job performance of individuals in workforce (Burt, Hogarth, & Michaud, 2000).

However, their importance in return migration has rarely been discussed, particularly for the migration of highly skilled professionals and entrepreneurs. Skilled migration is usually regarded as a highly individualized action where individuals respond to the opportunities arising in different geographic locations independently. What we have found here about the return of Chinese engineers shows a pattern very distant from the individualistic fashion – they return in teams. Different from academia returnees and expatriates of multinational companies, those who return to start their own businesses usually do not go back alone, but often go back with business partners. Fifteen out of the
twenty-four of returned entrepreneurs that I interviewed returned with a partner or a group of partners.

Founded in 2001, STM is now a leading IC design company in China. Its founding team consisted of about 30 returnees from the U.S. The CEO P. Hu is very proud of their team:

At the beginning we had around 15 people who were mostly old school buddies or former colleagues. All of us had been in the U.S. for many years and had been waiting for the right time to come back. We often got together talking about the potential move. Later on, friends brought in friends and our team grew to more than 30 when we finally decided to return. You can’t imagine all the different kinds of difficulties and challenges we have encountered in this journey (to return and start a company). Without a strong team, it would have been impossible to get this far.

The size of the return group varies from dozens to only a few people. However, the cases all share a common feature that return is a well prepared move, where allies are formed among those with similar migration experience, sharing the same “New-China-dream,” but with diversified managerial and technical skills. The connections among team members are established in the process of migration, usually in the U.S., among people who had little previous contact in China.

**Voluntary ethnic associations as intermediaries**

Not only do informal ties play an important role in return migration, but also formal organizations. It has been well established outside of the international migration context that labor market institutions and the relationships among these institutions at the workplace, community, and national levels largely shape the labor market dynamics and the individuals’ career and job outcomes (For example, Kerr, 1994; Kochan, Osterman,
Locke & Piore 2001). Here we find that return migration is also facilitated by a set of formal organizations, both in China and in the U.S., that have developed in the process of migration. Return to China is a process where multiple stakeholders are actively involved and closely connected to each other. Various types of voluntary ethnic associations have become active players in this process and they play two critical roles in return migration: First, they connect the overseas Chinese communities with the key stakeholders in China, particularly government bodies at different levels, and represent migrants in collective interactions with gatekeepers in China. Second, they provide a wide range of assistances to potential returnees and offer channels through which potential returnees can share information and resources.

The motives that govern these organizations are both cultural and instrumental. They may reflect spontaneous tendencies among immigrants, although they do not reflect the kinds of family ties which are often emphasized in discussions of Chinese culture. When people return to China they tend to draw more heavily on these new ties established in the process of migration than on family ties. But if these dense networks reflect in part the spontaneous outgrowth of certain cultural features of the migrants, they are definitely encouraged by the Chinese government, which fosters these organizations and then responds to the immigrants through these organizations, rather than directly to them as individuals when they return to China. This yields a very different picture of the Chinese government from the conventional view of the State as a distinct bureaucracy independent of civil society.

The Chinese business world is traditionally dominated by “Guanxi,” the Chinese word for relationships or connections. Relations in reciprocity with various players in the
society are extremely important for success, either for a business or for a career. This becomes rather difficult for fresh returnees, who have been almost uprooted from the social contexts in China for quite some years. To restart, they need not only the right information, but also the acquaintance with various gatekeepers.

Voluntary ethnic associations come to play the role of the intermediaries between migrants and the gatekeepers in China, mainly government agencies, for two reasons. Chinese government finds these associations to be effective channels to reach overseas communities and relies on them to screen potential returnees. The government has been very actively reaching out to their highly skilled emigrants. Each year hundreds of delegations comprised of representatives of various industries and government agencies are sent out to meet with overseas Chinese, with the objective to attract the “best and brightest” back to China. However, it is difficult for them to reach the migrants one by one or even get their messages delivered to the right people at the first place. Ethnic associations, which have already organized migrants by education and background, become a good resource that the stakeholders in China can tap on. Through the associations they not only can get access to a large number of migrants, but also can effectively single out the group that they want to talk to, such as bio-engineers or computer engineers. J. Lin, who is a member of several overseas Chinese associations and recently co-founded a new association, commented on the values of these organizations.

In this society (China), you have to make friends before starting to do business. If you come back alone, you may need to start making friends with a section chief (the lowest rank in the government bureaucracy) and it may take you a year to finally reach a bureau chief. However, if you come back with a 30-person delegation of an overseas
organization, suddenly you become visible and the mayor’s door is open to you. They are just busy and do not have time to deal with you one by one.

This study identifies three types of associations that play an active role in the return migration of Chinese engineers: the organizations of migrants overseas, the organizations of the returnees in China, and the alumni associations of U.S. universities.

**Overseas Chinese Associations:** Chinese diasporas have a long tradition of forming associations to handle their community affairs, with the hometown associations in big cities’ Chinatowns as a typical example. The associations of the highly skilled new arrivals emerged in late 1980s and grew rapidly through the 1990s. These new associations are different from the older cultural and communal associations in many ways. Whereas the traditional Chinese associations primarily serve to maintain social orders inside the local Chinese communities and serve more cultural functions (Zhou, 1990), the new organizations are more career orientated. They often organize around occupations or industries. For example, the three most active associations in Boston’s Chinese professional communities are New England Chinese Information and Network Association (NECINA), Sino-American Pharmaceutical Professional Association (SAPA), and Overseas Chinese Entrepreneurs Association (OCEAN). As shown in their names, each is an organization of migrants in a specific sector. Within these organizations, members usually divide themselves into subgroups focusing on more specialized fields. For instance, NECINA is an association of engineers in information technology (IT) industries. Within NECINA, there are 8 special interest groups (SIGs) in network infrastructure, telecommunication, wireless networks, content and media technologies, network software, information technologies, BioIT, and IT-related entrepreneurship.
Corresponding to the growing transnational practices in high tech industries, particularly in IT, these associations have also become increasingly internationalized. All of the above three are branches of some cross-regional umbrella associations that have members both in the U.S. and in China. Their members in China are mostly returnees who choose to stay in the loop so that they can be aware of what is going on in their fields in the U.S. Although the scope of coverage varies, all of these organizations have more or less created transnational networks of Chinese professionals by sector. These organizations keep tracking the trends and changes in their industries or occupations, actively gather and disseminate job and business information both in the U.S. and in China, and maintain close connections with the industry associations and policy makers in China. The development in IT has greatly facilitated the communication among the members. Blogs, yahoo groups, and online video conferences are all used to instantly exchange information between different locations.

Returnees’ organizations in China: In contrast to the overseas Chinese professional associations that are based abroad and reach to the homeland of China, the returnees’ associations usually originate from China and reach out to the overseas diasporas. Although the current wave of return has only a history of about 10 years, the returnees have already started building very active associations among themselves. The most established one is the Western Returned Scholars Association. The membership in its Beijing branch alone increased from 300 in the mid-1980s to 11,400 in 2003. It also has branches in 14 foreign countries. Associations of this type have been successful in forming coalitions among highly skilled returnees. They have also worked actively in
providing consultancy to government bodies regarding policies related to migration and return migration and are getting increasing influence in policy formation.

Alumni Associations of U.S. Universities: The associations of Chinese alumni of U.S. universities are quite different from the conventional alumni associations of U.S. universities. They are voluntary associations initiated and operated by Chinese alumni themselves. Their primary function is to maintain close connections among alumni rather than to the schools. Most of them are extensions of the Chinese Students and Scholars Associations (CSSAs) in universities. Almost every U.S. university with Chinese students has a CSSA, sometimes under a different name. CSSA’s involvement starts from very early on after its member comes to the U.S. In 2001, students in Beijing who were admitted to the graduate school of MIT, not knowing each other before the admission, gathered and planed their trip to the U.S. together with the help of MITCSSA, and landed in Cambridge as a group of 28 people. Two others were refused U.S. visas before they got on the plane and the rest of the group shared their loss from the non-refundable group tickets as agreed beforehand. CSSAs also organize a number of activities bringing members together and provide assistance throughout a student’s school years, from free weekly shuttles for grocery shopping in Chinese supermarkets to career fairs co-organized with companies and government bodies from China.

The pursuit of collective action happens at the very beginning of the settlement process in the U.S, as the above anecdote illustrates, to cope with the uncertainties in a foreign environment. The bonds are formed at the outset and strengthened through the settlement processes, and are often well maintained after schools. When these former students come to the point of considering returning to China, once again, they find
themselves face a lot of uncertainties – the home country, to some extent, becomes foreign to them due to the enormous transformations that have taken place when they were away. They often turn to the networks of old buddies, whom they have known from the start of their overseas journey, and with whom they share similar experience, to seek resources, mentorship, and partnership.

**Conclusion**

The increasing two-way flows of skilled labor across national borders, along with the internationalization of higher education and transnational practices in production, have started to transform the landscape of highly skilled labor markets in many ways. There is an increasing need to understand the mechanisms of labor flows and the emergence of new institutions in these transnational labor markets.

The data collected through multiple methods in this study enable us to capture the complexity of a particular labor flow – the return migration of Chinese engineers from the U.S. The analysis shows that it is not the case that those less successful in the U.S. or with more difficulty to integrate choose to return. Instead, engineers whose skill sets and career orientations fit better into the opportunity structure in the home country are more likely to return. The return migration of Chinese engineers is often associated with entrepreneurship.

The study further shows that migrants are also deeply embedded in a web of social connections. The return migration of Chinese engineers is very often a group process instead of an individual process. The decision to return is often not formed by isolated individuals, but by a group of engineers who return together. New forms of ethnic associations have emerged and acted as important intermediaries between
migrants’ communities and the gatekeepers in China. The interactions between these
different players largely shape the return flows, and collective actions often characterize
the movement.

To what extent can we generalize the findings from this study to the circular
migration between other countries? As an extension of this study, I have examined a
second case, the circular migration of Indian engineers (Qin, 2007). This analysis is based
on a survey of the alumni of Indian Institute of Technology, the leading engineering
school in India. The survey data contains over 3,000 observations and covers three
groups of alumni – those who work and live overseas, those who have returned to India
from abroad, and a control group, those who did not migrate at the first place. In addition,
the survey not only covers alumni in the U.S. and those who returned from U.S., but also
a few hundred alumni who migrated to and returned from other countries, such as the
U.K. and Australia. The data has shown some interesting contrasts with what we have
observed in the Chinese case, which reflect variations in the opportunity structures and
social structures that migrants face in these different contexts.
References


Figure-1 Plan for Returning to China in the Next Five Years

- Return: 31%
- Not Sure: 34%
- Do not Return: 35%

Figure-2 Plan for Return by Wage

- $40K-60K
- $60K-80K
- $80K-100K
- >$100K

Percentage of Return Plan: No, Return Plan: Not Sure, Return Plan: Yes
Figure 3: Plan for Return by Proportion of Chinese Colleagues at Work

- None
- <25%
- 25%-50%
- 50%-75%
- >75%

Percentage

Proportion of Chinese Colleagues at Work

- Return Plan: No
- Return Plan: Not Sure
- Return Plan: Yes
### Table-1 Sample Demographic Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>S. E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>37.35</td>
<td>6.53</td>
</tr>
<tr>
<td>Gender (% male)</td>
<td>73%</td>
<td>45%</td>
</tr>
<tr>
<td>Years of schooling in China</td>
<td>17.44</td>
<td>2.20</td>
</tr>
<tr>
<td>Home country work experience (% yes)</td>
<td>72%</td>
<td>45%</td>
</tr>
<tr>
<td>Years in the US</td>
<td>11.2</td>
<td>5.79</td>
</tr>
<tr>
<td>Master degree in the U.S.</td>
<td>70%</td>
<td>46%</td>
</tr>
<tr>
<td>Doctor degree in the U.S.</td>
<td>26%</td>
<td>43%</td>
</tr>
<tr>
<td>Entrepreneurship experience</td>
<td>27%</td>
<td>45%</td>
</tr>
<tr>
<td>Immigration status (% permanent residence or citizen)</td>
<td>70%</td>
<td>46%</td>
</tr>
<tr>
<td>Current income (x $10,000)</td>
<td>9.7</td>
<td>1.89</td>
</tr>
<tr>
<td>Whether or not found the current job through Chinese (% yes)</td>
<td>38%</td>
<td>49%</td>
</tr>
</tbody>
</table>

### Table-2 Return Plan by Immigrant Status

<table>
<thead>
<tr>
<th>Immigration Status</th>
<th>Return Plan</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not Return</td>
<td>Perhaps</td>
</tr>
<tr>
<td>Permanent</td>
<td>38 (.35)</td>
<td>37 (.34)</td>
</tr>
<tr>
<td>Non-Permanent</td>
<td>14 (.33)</td>
<td>14 (.33)</td>
</tr>
<tr>
<td>Total</td>
<td>52 (.35)</td>
<td>51 (.34)</td>
</tr>
</tbody>
</table>

Row proportions are in parentheses.
### Table-3 Ordered Logit Models of the Determinants of Return Decision

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Coefficient (Standard Deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio of Chinese at work</td>
<td>-0.642 ** (0.218)</td>
</tr>
<tr>
<td></td>
<td>-0.634 ** (0.22)</td>
</tr>
<tr>
<td></td>
<td>-0.652 ** (0.222)</td>
</tr>
<tr>
<td>Ratio of Chinese in social life</td>
<td>1.402 ~ (0.838)</td>
</tr>
<tr>
<td></td>
<td>1.461 ~ (0.853)</td>
</tr>
<tr>
<td></td>
<td>1.477 ~ (0.859)</td>
</tr>
<tr>
<td>Entrepreneurship experience</td>
<td>0.772 * (0.378)</td>
</tr>
<tr>
<td></td>
<td>0.87 * (0.386)</td>
</tr>
<tr>
<td></td>
<td>0.819 * (0.395)</td>
</tr>
<tr>
<td>Current income</td>
<td>0.230 ~ (0.126)</td>
</tr>
<tr>
<td></td>
<td>0.243 ~ (0.129)</td>
</tr>
<tr>
<td></td>
<td>0.231 ~ (0.133)</td>
</tr>
<tr>
<td>Immigration status</td>
<td>-0.28 (0.244)</td>
</tr>
<tr>
<td></td>
<td>-0.278 (0.248)</td>
</tr>
<tr>
<td></td>
<td>-0.345 (0.285)</td>
</tr>
<tr>
<td>(Log) Years of US experience</td>
<td>0.045 (0.15)</td>
</tr>
<tr>
<td></td>
<td>0.025 (0.151)</td>
</tr>
<tr>
<td></td>
<td>0.0229 (0.151)</td>
</tr>
<tr>
<td>Lack of professional and technical skills</td>
<td>-0.190 ~ (0.108)</td>
</tr>
<tr>
<td></td>
<td>-0.198 ~ (0.11)</td>
</tr>
<tr>
<td>Lack of Language skills</td>
<td>0.11 (0.127)</td>
</tr>
<tr>
<td></td>
<td>0.106 (0.128)</td>
</tr>
<tr>
<td>Lack of social and communication skills</td>
<td>0.064 (0.138)</td>
</tr>
<tr>
<td></td>
<td>0.0676 (0.14)</td>
</tr>
<tr>
<td>Age</td>
<td>0.023 (0.033)</td>
</tr>
<tr>
<td>Gender</td>
<td>0.074 (0.376)</td>
</tr>
<tr>
<td>Number of Observations</td>
<td>146</td>
</tr>
<tr>
<td>Chi2(11)/Chi2(9)/Chi2(6)</td>
<td>19.99 **</td>
</tr>
<tr>
<td>Pseudo R2</td>
<td>0.0624</td>
</tr>
<tr>
<td></td>
<td>146</td>
</tr>
<tr>
<td></td>
<td>23.69 **</td>
</tr>
<tr>
<td></td>
<td>0.0739</td>
</tr>
<tr>
<td></td>
<td>146</td>
</tr>
<tr>
<td></td>
<td>24.12 **</td>
</tr>
<tr>
<td></td>
<td>0.0753</td>
</tr>
</tbody>
</table>

Key: ~: p<0.1, *: p<0.05, ** p<0.01, *** p<0.001
Standard deviations are in the parentheses.