

Hiring Patterns of Chinese Universities:  
What Can Be Learned from University-Web Pages

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## Introduction

In recent years a considerable number of Chinese nationals have received PhD degrees in the United States. By way of example, in 2005, 3,827 PhDs were awarded to individuals from the People’s Republic of China (NORC 2006). It is well documented that a large percent of Chinese students stay in the United States after receiving their PhD. For example, Black and Stephan (2007) find Chinese students to have the highest stay rate (80%) among all foreign PhDs educated in the U.S. between 1981 and 1999 in science and engineering. Mike Finn finds that Chinese have the highest four-to-five year stay rate after graduation of all PhD recipients who hold a temporary visa at the time of graduation. Moreover, Finn documents that the stay rate for Chinese students has been increasing over time, going from 65% for the 1987/88 cohort to 96% for the 1996 cohort (Finn 2003).

But some Chinese students do leave after receiving their PhD and some go back and forth between jobs in the U.S. and China. We know virtually nothing about where these returning PhDs work. Here we explore the possibility of using web pages from Chinese universities to study U.S.-Chinese educated PhDs working in China.

For the purposes of our study, we focus on programs in economics and biology and restrict our study to “985 Institutions.” The 45 institutions constitute a select group that have been singled out by the Chinese government in an effort to direct resources to a handful of institutions which the government sees as having the greatest potential for success in the international academic community.<sup>1</sup> Project 985 institutions receive grants in addition to support provided by the 211 project, which is an effort to develop 100 top Chinese universities for the 21<sup>st</sup> century (Mohrman 2005).

The data were collected by graduate students at Central University of Finance and Economics. The intent of the project was to code full-time faculty. In some instances,

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<sup>1</sup> At the time of this writing, there are 38 institutions on the official list, and 7 additional universities are treated as “985 Institutions” by management.

the full-time faculty reported on the web pages may also hold full-time positions at other institutions. For example, Gang Tian is listed among the full-time faculty at Beijing University but is also listed as a full-time professor at the Massachusetts Institute of Technology (Normile 2006). On the other hand, we have not coded faculty in the part-time Changjian scholar-positions, known as jiangzuo, or lecture chairs (Normile 2006).

## Economics

Forty-four of the 985 institutions have a program in economics. Of these, 38 provide details regarding faculty degrees. Among these, 29 have one or more faculty members with a PhD degree from outside of China; 18 employ one or more faculty with a U.S. PhD; for a total of 130 faculty educated in the U.S. The U.S. trained represent 6.1% of faculty at the 38 institutions for which degree information can be determined; they represent 9.5% of the faculty at the 18 institutions hiring one or more U.S.-trained economists and 7.2% at the institutions hiring one or more foreign-degreed faculty. The percents would be higher if the denominator were to count faculty with PhDs rather than total faculty. At this point in time we have not determined the educational credentials of the Chinese trained working in a 985 institution but we know that it is not that uncommon to have faculty serving who do not have a PhD or PhD-equivalent degree.

The hires are heavily concentrated at 3 of the 18 institutions: 40 of the 145 faculty members at Peiking University have a PhD from the U.S.; 17 out of 43 faculty at Tsinghua University have a PhD from the U.S. and 29 out of 72 faculty have a PhD from the U.S. at Central University of Finance and Economics. The mass hiring for western-trained PhDs started in 2004 when the central government of China initiated a special fund to sponsor the program of the Innovation Platform of Economics in Shanghai University of Finance and Economics, which provides higher salary (about three to four times that of their peer faculty) to attract western-trained, especially US-trained PhDs.

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The U.S. PhDs come from 57 institutions (in all but one case the institution of training was readily identifiable). Eight institutions bestowed 5 or more degrees: They are (in alphabetical order) Cornell (5); Ohio State (7); Stanford (5); University of Minnesota (8); University of Pittsburg (5); UC Berkeley (6) ; UC San Diego (6) and University of Texas at Austin (5). Fifty-nine percent of the degrees are granted by a top-25 program as rated by the 1993 NRC report.

In recent years approximately 962 students a year receive a PhD in economics in the US (average of counts as reported in 2005 SED report for years 1990-2005). Approximately 45% or 433 of these are on temporary visas (410 of the 912 PhDs awarded in economics in 1999); among these we estimate that 27% are born in China, assuming the same underlying distribution of Chinese to temporary-resident PhDs as in all fields (NORC 2005). This leads us to estimate that 1754 PhDs ( $15 \cdot 433 \cdot .27$ ) were awarded to Chinese students during the period 1991 to 2005. Using an average of the four-to-five year stay rates calculated by Finn for Chinese (86%), we estimate that 246 of these PhDs left the United States. While this is a very back-of-the-envelope estimate (we can get more accurate estimates by analyzing the SED micro level data), the number serves as a

benchmark from which to access the 130 hires. From this one must conclude that these hires clearly represent a significant share, if not a majority, of those who leave the U.S.

Our web page analysis also permits us to document that 99 faculty at the 985 institutions earned PhD degrees outside of China or the U.S. The most common country from which to receive the degree was Japan (29), followed by the UK (20), Canada (16); Australia (10) Singapore (5); Germany (5) Belgium (3); Russia (3); Korea (2) and Austria (2) and the Netherlands, France, Finland, Kazakstan each trained one faculty member. When we add these 99 faculty to the 130 U.S.-trained faculty we conclude that 229 of the 2130 faculty (10.7%) working at one of the 38 institutions received a PhD outside of China; 12.7% of the faculty at the 29 institutions hiring a foreign-trained PhD are educated outside of China.

## Biology

We have done much the same type of analysis for departments in biology at 985 institutions. We find that 37 of the institutions have programs in biology and 34 of these 37 have web pages that provide information on the degrees of the faculty. Combined, these 34 institutions have 2361 on their faculty. Among these, 27 programs have one or more faculty holding a foreign degree and 21 have one more faculty trained in the U.S., for a total of 67 faculty members. The 67 faculty represent 3.9% of faculty working at the 21 programs that hire one or more U.S.-trained faculty; they represent 3.4% of the faculty working at one of the 27 programs that hire faculty educated outside of China.

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The 67 trained at 47 identifiable institutions; in four instances we cannot determine the name of the institution due either to a spelling error, unspecified institutions, or, in one instance, the recording of “West Coast University” as the name of the institution.

Compared to economics, degrees are much less concentrated: only Berkeley, with 5 graduates trained five-or more PhDs working at a 985 institution in biology. Thirty-seven of the 67 work at one of five institutions: 9 at Xiamin, 8 at the University of Science and Technology of China; 7 each at Peiking and Tsinghua and 6 at Wuhang.

We find that 134 faculty earned PhDs outside of either China or the U.S. The country training the most was once again Japan (46), followed by the UK (20), Germany (13), France (11), Canada (8), Austria (6), Russia (5), Switzerland (5), Sweden (4), Korea (3), Hong Kong (3), the Netherlands (3) and Australia (2). Ireland, Italy, Singapore, and Norway each trained one faculty member. When we add the 134 to the 67 U.S.-trained faculty we conclude that 201 faculty working at programs in biology for which we have data received a PhD outside of China (8.5%); 10.2% of the faculty at the 27 institutions hiring a foreign-trained Ph.D. are educated outside of China.

A back-of-the-envelope analysis leads us to estimate that approximately 6,600 PhDs were awarded to Chinese in the biological sciences in the United States during the past 15 years. If 86% of these stay in the U.S., and 14% leave, 932 are no longer in the U.S. Of these, 67 or 7.4% are working at a 985 institution, a dramatically lower percent than in

the case of economics. Moreover, they represent just slightly more than 1% of the Chinese trained in biology in the U.S. during the past 15 years.<sup>2</sup>

### **Preliminary Conclusions**

- (1) A considerable amount of information can be gained from examining the web pages of these elite programs regarding the composition of the faculty. Almost all of the programs maintain web pages from which information can be coded.
- (2) The vast majority of these programs for which we have information hire one or more faculty with a PhD from a non-Chinese university (29/38 in the case of economics and 27/34 in the case of biology). Among the faculty at these institutions, 12.7% are foreign-educated in the case of economics, 10.2% in the case of biology.
- (3) Almost 50% of the programs in economics hire one or more faculty with a U.S. PhD; approximately 60% of those in biology. U.S. trained faculty represent 9.5% of the faculty in these institutions in economics (and a higher percent of those with PhDs—which we don't know at this time); 3.6% in biology.
- (4) The U.S.-trained come from a large number of U.S. PhD programs. In economics, the institution that trains the most is Minnesota (6%); almost 60% are trained at top 25 programs in economics. In biology, the institution that trains the most is University of California, Berkeley.
- (5) A sizeable percent (our back of the envelope estimate is 54%) of Chinese PhDs in economics who leave the U.S. work at one of these 985 institutions; we estimate that a considerably smaller percent (7.2%) of Chinese biologists who leave the U.S. are working at one of these institutions. We believe a differential between economics and biology will remain after more careful estimates are generated due to the special policies to attract economics and economics related major PhDs by most universities.
- (6) The number of Chinese-trained who have returned to China represents approximately 8% of degrees awarded to Chinese in the U.S. in economics in the past 15 years; slightly more than 1% of those awarded in biology.

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<sup>2</sup> On average, during the period 1990-2005, 5481 PhDs a year were awarded in the biological sciences. We estimate that 30% of these are awarded to students on temporary visas and that 27% of these go to Chinese students. This leads us to estimate that 6,600 Chinese have received a PhD in biology in the U.S. during the past 15 years. Applying a 14% average "leave" rate, we come up with the estimate of 932 working outside the U.S.

Table 1  
Descriptive Statistics for the 985 Institutions

	Number of institutions with programs	Number with information on faculty and faculty total	Number with one or more foreign degrees and foreign faculty total	Number foreign trained	Number with one or more U.S. trained faculty and faculty total	Number trained in U.S.
Programs in Economics	44	38 2130	29 1800	99	18 1364	130
Programs in Biology	37	34 2361	27 1977	134	21 1738	67

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