



Original Article

# Riding over the National and Global Disequilibria: International Learning and Academic Career Development of Chinese Ph.D. Returnees

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In response to the growing pressure of globalization and intensified competition for global talent, the Chinese government has proactively invested in human capital by sending students abroad to pursue higher degrees through national scholarship programs. This article sets out against the context of raising concerns and even questions the value of the globalization and internationalization of higher education on graduate employment and professional development. It critically examines how the overseas doctoral study could affect the graduate employment of Ph.D. returnees in the academic job market. Drawing on a national survey on government-funded Chinese Ph.D. returnees, this article finds no significant “pure prestige” effect of returnees’ doctoral university independent of individual merits. Instead, pre-employment academic productivity plays an important role in determining Ph.D. returnees’ job placement in a top university in China. The present article offers a sociological perspective on how the Chinese government rides on the rising nationalism and the call for globalization through grooming Chinese students to become global talents before bringing them back for enhancing the country’s global competitiveness.

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## Introduction

After implementing economic reforms in the last few decades, China is now the second largest economy in the world. However, the existing economic model, which rests heavily upon the manufacturing sector using the formula of low-skills and low-technology production, can no longer ensure the sustainable economic growth in China. The privatization and decollectivization in the 1990s and 2000s have not only transformed the Chinese economic structure but also raised the



urgent need to advance the industry and increase the role of the service sector in fostering future economic growth (Li, 2018a, b). Building on a constructive critique of existing accounts of extensions of the developmental state and varieties of capitalism, London (2017) contends that China is transitioning to a kind of Market–Leninism. Realizing the growing importance of internationalizing its economy against the highly globalized world, the Chinese government has rolled out different strategic plans pledging to become an “Industrial Superpower” by 2049. The said plans call for industrial upgrade through the “Made in China 2025” strategy and aim for the full digitalization of the Chinese economy (Stepan, 2015). All these newly adopted economic strategies suggest that the Chinese regime is trying to shift from labor-intensive industries to internationally competitive private and state-owned enterprises. However, to make the shift successful, China would require a strong labor force with appropriate knowledge, adaptive skills, and relevant experiences in supporting future economic re-engineering.

Against this particular socioeconomic context, the Chinese government has rolled out different strategies to concentrate funding support to universities and to individuals to nurture, attract, retain talents and professionals to transform its manufacturing-based economy to a knowledge-based economy (Jiang, 2018; Klingler-Vidra and Mok, 2018; Mok, 2016; Mok and Jiang, 2018; Shen, 2018). As a key strategy to nurture high-talent professionals, the Chinese government established the State Scholarship Fund to support students who are qualified to study abroad and attract them back to China after graduation. Returned Ph.D. graduates generally do not encounter serious difficulties in job seeking (Zweig and Han, 2010). Harman (2003) find that international Ph.D.s in Australia are more optimistic about their future career development compared with domestic Ph.D.s. In South Korea, foreign doctoral degree holders have an advantage over those with local doctorate degrees in the academic labor market (Jung, 2018). In Malaysia, those who have attained degrees from abroad also enjoy a higher status than their peers (Rizvi, 2000).

Despite the lack of official statistics on the international mobility of Chinese doctoral students, Shen and Wang (2018) drew on multiple sources of data and found that an increasing trend of Chinese students for overseas doctoral degrees was witnessed since the “open door” policy in late 1970s. In particular, there has been a sustained and rapid growth in the outflow of students in seeking doctoral degrees overseas in recent two decades (Shen and Wang, 2018). However, less is known about the employment of international Ph.D. graduates in China. Compared with their international counterparts in earlier studies, Chinese Ph.D. returnees may not face an optimistic prospect in career development for two reasons. First, they probably lack domestic social network resources, which is considered an importance resource in work acquisition and career development in China (Bian, 1994). Second, the increasing number of returned Ph.D.s may intensify the

competition in the academic labor market. Thus, it may be challenging for Chinese Ph.D. returnees to secure a satisfactory academic position.

Against the background briefly outlined above, this study examines how Ph.D. returnee' international learning affects their academic job acquisition with a special focus on the effects of the prestige of returnees' doctoral university and their supervisors, as well as their academic productivity. More specifically, the authors of this article focus on how these factors contribute to their employment in an elite university in China.

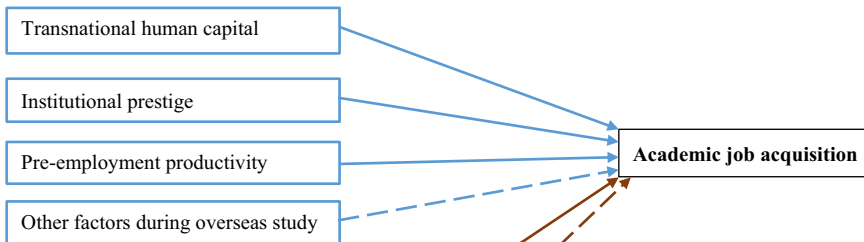
## **Literature Review: International Learning and Academic Position Acquisition**

This study adopts the theoretical framework of the norms of universalism and particularism in the stratification of academic career attainment (e.g., Merton, 1973; Long and Fox, 1995; Zuckerman, 1988) to examine the academic position acquisition of Ph.D. returnees. The norm of universalism refers to the idea that that scientists/scholars should be rewarded based on the merits of their contribution to the production of knowledge (Blau and Duncan, 1967; Bridgeland, 1982; Merton, 1973). In contrast, the norm of particularism refers to the idea that the allocation of rewards and resources considers scholars' characteristics independently from their scientific contributions (Long and Fox, 1995; Zuckerman, 1988).

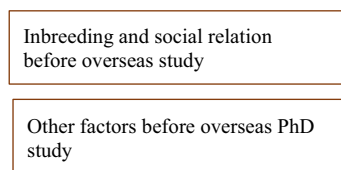
When applying the theoretical discussion to the present study about academic job acquisition in an elite university, this study suggests that the norm of universalism implies a universal or the same hiring or promotion standards in academic career based on scholars' contributions to the advancement of scientific knowledge. And, academic publication could be one of the measures of the scientific contributions (Zuckerman and Merton, 1972; Long and Fox, 1995). Meanwhile, the norm of particularism implies a preferential consideration of functionally irrelevant characteristics to the contribution to scientific knowledge (Long and Fox, 1995). Although some attributes leading to particularism are usually ascribed characteristics, such as gender and race in earlier studies (e.g., Parsons and Shils, 1951; Zuckerman, 1988), the norm of particularism emphasizes the characteristics independently from their scientific contributions as a basis for the allocation of rewards and resources (Long and Fox, 1995).

This study adopts the theoretical framework of the norms of universalism and particularism in the stratification of academic career attainment to examine the academic position acquisition of Ph.D. returnees. Four main approaches are summarized from earlier studies about the multiple channels influencing academic job acquisition. Figure 1 presents the analytic framework for the present study. Ph.D. returnees having accumulated transnational human capital are benefiting

*International learning experience:*



*Experience before overseas study:*



Note: Figure developed by the authors. While both solid and dashed lines indicate multiple channels for job acquisition, this study focuses on the four approaches presented by the solid lines. Individual characteristics and the relationships among the factors of international learning experiences and factors of experience before overseas study are not shown for parsimony.

**Figure 1.** Multiple Channels for International Education and Job Acquisition.

from organizational prestige and mentor prestige, together with pre-employment productivity, could affect their job placement.

The effect of pre-employment productivity in determining Ph.D. returnees' job acquisition indicates the norm of universalism in hiring standards in academic career based on scholars' contributions to the advancement of scientific knowledge. Independently from the academic contributions, the net effects of "pure prestige" of university and mentor imply the norm of particularism based on the functionally irrelevant characteristics of scientific knowledge advancement. In addition, the potential impact of inbreeding and social relation indicates the norm of particularism in academic job acquisition. More detailed discussions of the theoretical framework will follow.

### Transnational human capital

In recent years, the concept of human and social capital has been increasingly used to analyze the employment and career development of international students. Some scholars believe that overseas students' experience of studying abroad and their

accumulated knowledge and ability comprise transnational human capital (Gerhards *et al.*, 2017; Woolley *et al.*, 2008). An international graduate degree is also considered a form of transnational cultural capital (Kim, 2011, 2016). Such capital enables them to gain advantages in returning to work. For example, when applying for jobs in the academia in Korea, US doctoral degree holders have more advantages than domestic Ph.D.s (Kim, 2016). Overseas students not only cultivate transnational human capital and cultural capital abroad, but also accumulate unique social capital. Further, scientific research training is not only a social process, but also a key driver for future career networking and collaboration (Woolley *et al.*, 2008).

### **Institutional prestige**

Earlier studies of stratification in science have consistently found a strong positive correlation between the prestige of the department of scientists' doctoral study and the prestige of the university department where they work (Caplow and McGee, 1958; Crane, 1965; Hargens and Hagstrom, 1967). According to Allison and Long (1990), the prestige effects involve the selection effect and the institutional effect. The selection effect means elite individuals are selective to the Ph.D. program, and the prestige of the Ph.D. program reflects their cumulative advantages. The institutional effect reflects the impacts of the institution of the Ph.D. program, such as good faculty quality (e.g., Keith and Babchuk, 1998), positive peer effects, and better motivation (Headworth and Freese, 2016; Morrison *et al.*, 2011). These prestige effects could lead to better publication achievements and awards during doctoral study and can help improve academic job placement. In a recent research about placement in the academic sociology job market, Headworth and Freese (2016) reported that the effect of Ph.D. prestige on job placement operates indirectly through the mediation of productivity achievements.

However, some scholars argue that the positive effect of the institutional prestige of doctoral study in the first academic position is independently significant of pre-employment productivity (Long *et al.*, 1979; Baldi, 1994). Burris (2004) provides an alternative understanding of academic prestige from a structural perspective, in which the hiring department anticipated that having a Ph.D. graduate from a highly ranked department has positive implications for the hiring department's own prestige. This is called the "affiliated honor, institutional pedigree" (Oprisko, *et al.*, 2013) or "pure prestige" phenomenon (Headworth and Freese, 2016). The effects of "pure prestige" on academic job acquisition imply the norm of particularism emphasizing particular characteristics independently from scholars' contributions to advancement of scientific knowledge.



## Inbreeding and social relations

According to past studies, when recruiting faculty members, departments often select candidates based on their social ties to the department (see Caplow and McGee, 1958, 110). Compared with domestic Ph.D. holders, overseas degree holders may find it hard to maintain their academic network in their homelands during their study abroad. They usually have weak domestic scholarly networks, or even cut off their domestic academic networks altogether. For example, despite over 85% of Ph.D. returnees in Portugal obtained job positions in public universities in 1970s and 1980s, the problem of inbreeding has emerged with the development of the Ph.D. system in Portugal. Some Portuguese returnees have faced disadvantages when they compete for academic positions (Delicado, 2011).

Lee and Kim (2010) analyzed the situation of Korean scholars who returned to Korea after obtaining doctoral degrees in the USA and noticed several interviewees mentioned maintaining their scholarly relationships with Korea while studying overseas. Such professional networks may enable the interviewees to secure a faculty position upon their return (Lee and Kim, 2010). The social networks of the inbreeding effect suggest a particular characteristic independent from the academic performance, hence implying the norm of particularism in the hiring standard of academic jobs.

## Pre-employment academic productivity

A number of scholars found that pre-employment productivity is one of the best predictors of future productivity (see, for example, Long *et al.*, 1979; Park and Gordon, 1996; Pinheiro *et al.*, 2014), and publication productivity increases scholars' chances of becoming known and influential in their research community (Cole and Zuckerman, 1984; Garfield, 1981). However, evidence of the impact of pre-employment academic productivity on the first position in the academia is mixed. On the one hand, Long *et al.* (1979) find that the effect of pre-employment productivity is insignificant on the prestige of scientists' first position in the academia.

On the other hand, publication productivity significantly affects the prestige of a scientist's initial academic appointment (Long, 1978). Bonnal and Giret (2010) find that scientific publications have a significant effect on access duration to permanent jobs in the academic sector of France. In the study of placement in the academic sociology job market, Headworth and Freese (2016) find that publication achievement plays an important role in the placement in research-oriented, tenure-track academic sociology jobs, and that achievement mediates Ph.D. prestige and job placement. Similarly, Chinese doctoral degree holders with higher academic productivity during their doctoral studies are more likely to work in the academic sector than in enterprises (Shen *et al.*, 2018). To sum up, the publication productivity indicates scholars' contribution to the advancement of scientific

knowledge. Its effect on academic job acquisition implies the norm of universalism in academic career, which emphasizes bases of academic contribution in the allocation of rewards and resources.

The above discussion provides a clear theoretical framework to be used when analyzing Ph.D. returnees' job search and career development. The next section discusses how the Chinese government responds to the call for internationalization of higher education and what major strategies are being adopted to maintain global competitiveness.

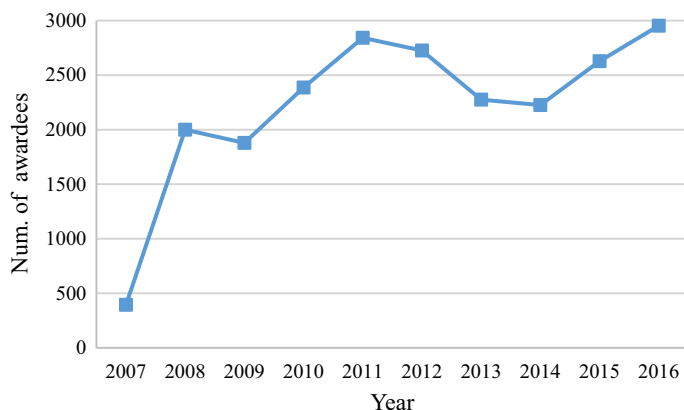
### **National Response to the Global War of Talents: The China Scholarship Council (CSC) Program**

Realizing the significance of attracting and retaining global talents to enhance the country's global competitiveness, the Chinese government has continually and actively nurtured and recruited talents with high technology, innovation-centric skills and knowledge, as well as international work experiences through different forms of strategic investment projects. However, only a small proportion of Chinese international doctoral graduates return to their home countries (Cao, 2008; Kim *et al.*, 2011).

In order to encourage talented professionals to study abroad and return to China, the Chinese government launched the CSC Program, which funds candidates eligible for studying abroad for a doctoral degree. According to the guideline of the CSC Program (CSC, 2018), candidates of the scholarship program should obtain a bachelor/master degree, fulfill the language requirements and are under age 35. As a requirement of the scholarship, the awardees must return to China for work after their graduation (CSC, 2018).

Since 2007, the CSC has annually sponsored students for overseas Ph.D. study. Since 2010, more than 2000 students receive the scholarship every year, and the number of awardees increased to almost 3000 in 2016, which is more than six times that of 2007 (Fig. 2). In total, 19,359 individuals have been awarded funding as of 2016. In fact, the Ph.D. returnees are found to bring positive impacts on research environment and higher education transformation, such as publishing in top international journals (e.g., Ma and Pan, 2015) and fostering international research collaboration (e.g., Jiang and Shen, 2019; Shen and Wang, 2018).

Against this policy background, the current article critically reviews how recipients of the China Scholarship Council (CSC) Program develop their career after graduation from overseas and how far their international learning could affect their job placement and career development. More specifically, this study focuses on the Chinese Ph.D. returnees funded by the CSC Program for two reasons. First, as the program is highly selective, the scholarship awardees are selected based on a very competitive procedure. The program provides a good opportunity to examine



Data source: China Scholarship Council.

**Figure 2.** Number of CSC program awardees for overseas Ph.D. study, 2007–2016.

Data source: China Scholarship Council.

such a group of talented professionals with international education experience. Second, as the scholarship awardees of this program are required to return to China for work after obtaining their Ph.D. degrees, this study can investigate their experience of overseas doctoral study and career development in China.

## Data and Method

### Data

To examine whether and how the international learning experience affects Chinese Ph.D. returnees' employment, this study draws on a questionnaire survey on the entire group of 2052 Ph.D. returnees supported by the scholarship of China Scholarship Council (CSC) Program. This survey was conducted by the research team of Graduate School of Education, Peking University, and the CSC in 2014. The CSC provided the research team with the information of all the Ph.D. returnees of the CSC program. Based on the information, the research team sent the questionnaire of the survey to the Ph.D. returnees. Three times email reminder followed the first email of the survey if no reply is received. By the end of this survey, a total of 441 valid questionnaires were received.

This article merged the Ph.D. returnee survey data with the publication information from Scopus database, in order to examine the effect of pre-employment publication productivity on the returnees' employment. The survey data were matched with the respondents' publication information extracted from



Scopus. Scopus<sup>1</sup> is the largest abstract and citation database of peer-reviewed literature covering research outputs in the fields of science, technology, medicine, social sciences, arts, and humanities, which are published in scientific journals, books, and conference proceedings. Therefore, the Ph.D. returnees' publication extracted from Scopus is accurate and of high standard. As some Chinese scholars' names in English are the same, the matching between Ph.D. returnees' information and the publication data in Scopus could not be solely based on returnees' name. To ensure the accuracy, the research team manually checked the consistency between the returnees' information (e.g., name, university of doctoral study, and current work unit) before matching their publication information with their survey data.

This unique feature of our data has an advantage in measuring research outputs of returnees and overcoming the challenge of previous studies on research outputs based on self-reported data in surveys (e.g., Baruffaldi and Landoni, 2012; Shin *et al.*, 2014). Self-reported publication information may be inaccurate due to exaggeration, underreporting, or bad memory from the respondents. Moreover, self-reported publications may not have a high quality in terms of scholarship. In comparison, our publication information data extracted from Scopus provide accurate information of respondents' publications of recognized quality.

### **Variables and statistical models**

This study used two dummy variables to measure the academic employment of the Ph.D. returnees. The first dependent variable is whether a returnee works in a university of Project 211. Project 211 in China was initiated by the Ministry of Education (MOE) of the People's Republic of China in 1995 with the goal to establish around 100 top universities in China.<sup>2</sup> This project includes 114 universities (116 if including two branch campuses of two universities in different provinces). A university under this project is considered a top university in China. The second dependent variable is whether returnees work in their home university (i.e., alma mater) where they attained their degree before study abroad.

Several variables were used to measure returnees' international learning during their doctoral study. The dummy variables of the host countries of doctoral study (Asia Pacific countries, e.g., Japan, Australia, Korea, and Singapore, as the reference group) include the UK, Germany, France, Italy, Switzerland, the Netherlands, the US, and Canada. The variables of Ph.D. disciplines are arts and humanities, as well as social sciences, and science-stream disciplines (including science, engineering, agronomy, and medicine) are the reference group. Whether the host country is an English-speaking country is also included (non-English-speaking country as a reference group).

To measure the institutional prestige, this article uses the ranking of the host university of the returnees' doctoral study, instead of the ranking of their doctoral programs. This is because no global ranking of different disciplines is widely



accepted except for economics (Amir and Knauff, 2008). In the absence of a global discipline ranking, global university rankings could be a useful indicator of the institutional prestige. Therefore, this article used the Shanghai Jiaotong University ranking of Ph.D. universities (a dummy variable with non-top 100 university in the world as a reference group) to measure the prestige of the university of the returnees' doctoral study. In addition, this article included a variable of Ph.D. returnees' doctoral mentors' rank (a dummy variable with non-full professor as a reference group) as a control.

To measure the academic productivity of Ph.D. returnees, this study uses international publication based on Scopus data instead of Chinese publication for three reasons. First, when the authors examined the research outputs of the Ph.D. returnees in the survey, the authors noticed that most of their publications are international publications instead of publication in China. This may be because they studied overseas, and international publications are well-recognized. More importantly, international publication productivity is found to increase scholars' chances of becoming known and influential in their research community (Cole and Zuckerman, 1984; Garfield, 1981). Second, several East Asian countries, including China, have been enhancing the global competitiveness of their universities through the quest for higher global ranking and engaging in a series of external/international benchmarking exercises. International publication in English language journals has taken precedence over publications in other languages. (Deem *et al.*, 2008). Last but not least, we matched the returnees' information with their publication information extracted from Scopus, which is the largest abstract and citation database of peer-reviewed literature covering research outputs in the various fields. Therefore, the returnees' publication based on Scopus is of high standard.

This study grouped the number of international publications indexed by Scopus into four groups: no publication (as the reference group of the dummy variables), 1–4 publications, 4–9 publications, and 10 or more publications. The categorical variables of the number of publication could capture the potential nonlinear effect of publication on academic job acquisition.

To measure the inbreeding effect, this study used the variable whether a returnee returns to his/her home university where he/she attained the highest academic degree before overseas doctoral study (not returning as the reference group). Some basic demographic variables were also controlled, including gender (a dummy variable with female as the reference group) and marital status (a dummy variable with single as the reference group). The continuous variables of age and age square term were used to capture the linear and nonlinear effects of age. This study also included a dummy variable of whether a returnee obtained his/her bachelor's degree from a top university (non-Project 211 university as the reference group).

As the dependent variables of this study were dummy variables, this study adopted multivariate logistical regression models for analyzing the factors contributing to returnees' employment in a top university or their home university.

## Results

### Descriptive analysis

In the analysis sample of 441 Ph.D. returnees, 49% obtained an academic position in a top university in China (indicated by a university of Project 211). About 22% of the returnees worked in their home university where they earned their bachelor's or master's degree before their overseas doctoral study. Among the returnees, 31% studied in Asia Pacific countries, including Australia, Japan, Singapore, and South Korea, whereas a large proportion of the returnees obtained their doctoral degrees in Europe. Specifically, around 18% of the returnees studied in Germany and France, respectively, 10% in the UK, and 15% in other European countries, including Italy, Switzerland, and the Netherlands. The percentage of Ph.D. graduates returning from the US and Canada is relatively small at 8%. Moreover, 27% of these host countries are English-speaking countries. About 84% of the returnees studied in science-stream disciplines, namely science, engineering, agronomy, and medicine. Those who majored in social sciences and arts and humanities comprise 10% and 6% of the returnees, respectively.

In addition, 24% of the returnees received their doctoral degree from a prestigious university, which is included in the top 100 in the Academic Ranking of World Universities by Shanghai Jiaotong University in 2014. During their doctoral study, 83% of the returnees were supervised by a full professor. Regarding the number of international publications recognized by Scopus during doctoral studies, around one-fifth of the returnees do not have any publication, and half of them have one to four publications, whereas only 7% of the returnees published 10 publications or more. Table 1 summarizes the descriptive statistics of the variables in this study.

### Analysis of the effects of international learning on job acquisition

To examine whether and how the experience of overseas study affects Ph.D. returnees' employment in a top university, this article conducted multivariate logistic regression analyses, and reported the results in Table 2. Model 1 is a baseline model showing the effects of the main demographic characteristics of Ph.D. returnees. The results show no significant gender difference in whether a returnee works in a top university in China after graduation. The marginally significant effects of the variables of age and age square suggest that returnees' age has a reverse-u curve effect on employment in a top university. This means that an



**Table 1** Descriptive statistics of the variables used in this study ( $N = 441$ )

<i>Variable</i>	<i>Mean</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
Employment in a top university (ref. = non-Project-211 university)	0.485	0.500	0	1
Return to home university (ref. = did not return)	0.224	0.418	0	1
Gender (ref. = female)	0.592	0.492	0	1
Age	30.447	2.255	24	42
Marital status (ref. = single)	0.558	0.497	0	1
Top university of undergraduate degree (ref. = non-Project-211 university)	0.741	0.438	0	1
<i>Host country of Ph.D. study</i>				
Asia Pacific countries (ref. group)	0.306	0.461	0	1
Germany	0.181	0.386	0	1
France	0.179	0.384	0	1
The UK	0.102	0.303	0	1
Other European countries	0.152	0.359	0	1
The US and Canada	0.079	0.271	0	1
English-speaking country (ref. = non-English-speaking country)	0.274	0.447	0	1
<i>Ph.D. discipline</i>				
Science stream (ref. group)	0.839	0.368	0	1
Social sciences	0.102	0.303	0	1
Arts and humanities	0.059	0.236	0	1
Ranking of the host university (ref. = non-top 100 in the world)	0.243	0.429	0	1
Supervisor's rank (ref. = non-full professor)	0.832	0.374	0	1
<i>International publication during doctoral study</i>				
No publication (ref. group)	0.261	0.440	0	1
1–4 publications	0.506	0.501	0	1
4–9 publications	0.161	0.368	0	1
10 publications or above	0.073	0.260	0	1

Science stream majors include science, engineering, agronomy, and medicine.

older returnee is more likely to obtain a position in a top university, but the age effect becomes negative when a returnee reaches a certain age. In addition, compared with non-married returnees with a bachelor's degree from a non-elite university, married returnees with a bachelor's degree from a top university are more likely to work in a top university in China. It is worth noting that all these characteristics become statistically insignificant after controlling for returnees' international learning experience. In particular, the effect of whether the university of the undergraduate degree is a top university in China is small and insignificant in the full model of Model 6.

#### *Transnational human capital*

Regarding the international learning experience, the results of Model 2 suggest no statistically significant difference of the host country of returnees' Ph.D. study, except that graduates from France are less likely to work in a top university

**Table 2** Logistic regression models of working in a top university ( $N = 441$ )

	(1)	(2)	(3)	(4)	(5)	(6)
Gender (ref. = female)	0.068 (0.199)	0.134 (0.209)	0.128 (0.210)	0.103 (0.214)	− 0.010 (0.243)	− 0.039 (0.247)
Age	1.147 (0.609) <sup>+</sup>	1.389 (0.652)*	1.351 (0.652)*	1.318 (0.660)*	1.097 (0.721)	1.118 (0.725)
Age square	− 0.016 (0.009) <sup>+</sup>	− 0.020 (0.010)*	− 0.020 (0.010) <sup>+</sup>	− 0.019 (0.010) <sup>+</sup>	− 0.016 (0.011)	− 0.016 (0.011)
Marital status (ref. = single)	0.497 (0.204)*	0.436 (0.211)*	0.442 (0.212)*	0.337 (0.219)	0.441 (0.246) <sup>+</sup>	0.344 (0.255)
Top university of undergraduate degree (ref. = non-Project-211)	0.400 (0.225) <sup>+</sup>	0.363 (0.231)	0.377 (0.232)	0.355 (0.235)	0.260 (0.267)	0.225 (0.271)
<i>Host country of Ph.D. study (ref. = Asia Pacific countries)</i>						
Germany		− 0.324 (0.314)	− 0.335 (0.317)	− 0.391 (0.323)	− 0.563 (0.365)	− 0.604 (0.371)
France		− 0.778 (0.322)*	− 0.783 (0.323)*	− 0.795 (0.329)*	− 0.682 (0.357) <sup>+</sup>	− 0.692 (0.364) <sup>+</sup>
The UK		0.238 (0.473)	0.160 (0.478)	0.022 (0.487)	0.348 (0.598)	0.268 (0.604)
Other European countries		− 0.263 (0.319)	− 0.232 (0.322)	− 0.332 (0.329)	− 0.436 (0.377)	− 0.539 (0.383)
The US and Canada		− 0.109 (0.495)	− 0.159 (0.498)	− 0.273 (0.504)	0.322 (0.606)	0.245 (0.610)
English-speaking country (ref. = non-English- speaking)		− 0.408 (0.384)	− 0.278 (0.403)	− 0.259 (0.406)	− 0.693 (0.499)	− 0.681 (0.503)
<i>Ph.D. discipline (ref. = Science stream)</i>						
Arts and humanities		1.150 (0.493)*	1.173 (0.491)*	1.351 (0.511)**	1.504 (0.528)**	1.570 (0.549)**
Social sciences		− 0.148 (0.352)	− 0.166 (0.353)	0.001 (0.364)	− 0.159 (0.412)	− 0.061 (0.427)
Ranking of the host university (ref. = non-top 100)			− 0.056 (0.237)	− 0.055 (0.239)	− 0.009 (0.278)	− 0.024 (0.279)
Supervisor's rank (ref. = non-full professor)			0.320 (0.291)	0.211 (0.295)	0.324 (0.348)	0.244 (0.353)
<i>International publication during doctoral study (ref. = no publication)</i>						
1–4 publications				0.049 (0.260)		− 0.080 (0.300)
4–9 publications				0.660 (0.342) <sup>+</sup>		0.358 (0.398)
10 publications or above				1.286 (0.470)**		0.994 (0.527) <sup>+</sup>
Return to home university (ref. = did not return)					3.848 (0.532)***	3.800 (0.533)***

**Table 2** *continued*

	(1)	(2)	(3)	(4)	(5)	(6)
Constant	– 20.249 (9.737)*	– 23.732 (10.439)*	– 23.391 (10.434)*	– 23.074 (10.556)*	– 19.454 (11.543) <sup>+</sup>	– 19.821 (11.601) <sup>+</sup>

Standard errors in parentheses. \*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$ , + $p < 0.1$ .

compared with graduates from Asia Pacific countries. In addition, studying in an English-speaking country does not have any significant effect on determining returnees' employment in a top university. However, the discipline of the doctoral study plays an important role. Compared with those who majored in science-stream disciplines, returnees who majored in arts and humanities are more likely to obtain an academic position in a top university in China; however, the difference between social sciences and science-stream majors is not statistically significant in determining returnees' employment in a top university (Model 2 of Table 2).

#### *Prestige effects of university*

Table 2 presents the effects of the prestige of returnees' host university. The results of Model 3 show that whether a returnee studied in top university for his/her doctoral study does not affect their employment in a top university upon returning to China. The finding is robust after controlling for the returnees' publication achievement (Model 4) and whether the returnees returned to their home university (Model 6). This means that, for Ph.D. returnees, "pure prestige" or "affiliated honor" has no significant effect independent from individual merits on the returnees' academic job acquisition.

#### *Inbreeding effect*

Following the discussion in the literature review section, overseas Ph.D. graduates typically find it hard to maintain their academic network in their home country during their overseas doctoral study. Overseas Ph.D. degree holders are thus disadvantaged in the job-seeking process in terms of the inbreeding effect in the academia. However, Ph.D. returnees from the CSC program earned their bachelor's or master's degree in a Chinese university before they went aboard for doctoral study and they could return to their home university after graduation. Therefore, these graduates returning to their home universities have the advantage of inbreeding effect compared with other Ph.D. returnees.

This article examined this inbreeding effect of Ph.D. returnees in Model 5 of Table 2. The results provide supportive evidence for inbreeding effect. If an overseas Ph.D. degree holder returns to his/her home university where he/she attained their degree before doctoral study, then he/she is much more likely to work in a top university. In fact, in our analysis sample, almost all (96%) home universities where Ph.D. graduates to return to work are top universities in China.

More importantly, the inbreeding effect remains large and statistically significant after controlling other key variables of international learning experience (Model 6 of Table 2). However, compared with the effects in Model 4, the effect of academic productivity (indicated by the numbers of international publication) during doctoral study becomes smaller and marginally insignificant after controlling for the inbreeding effect. Specifically, in the Model 4 without controlling for inbreeding effect, the likelihood of doctoral graduates with a large number of international publication (10 publications or above) in obtaining a position in a top university is 3.6 times (exponentiation of 1.286) of those doctoral degree holders without any publications. Meanwhile, this likelihood decreased to 2.7 times in Model 6 with the inbreeding effect (measured by whether one chooses to return to his/her home university).

In the Chinese context, social networks usually play an important role in job seeking (e.g., Bian, 1994). The current study shows that Ph.D. returnees work in their alma maters which are usually elite universities in China. The result seems to reinforce the argument of an “inbreeding effect” reflecting the importance of social networks in academic job acquisition. However, it is worthy to note that further analysis (to be elaborated in the next subsection) shows that returnees with high academic productivity are more likely to return to their home universities where they attained their academic degree before doctoral study, and almost all their home universities are among the top universities in China. The details are discussed in the next subsection.

#### *The importance of pre-employment academic productivity*

The results in Table 2 also show that the pre-employment academic productivity (measured by the number of international publications during their doctoral study) plays a crucial role in their employment prospects. Compared with those without any publications, Ph.D. returnees with larger number of publication (i.e., 4–9 publications or 10 and more publications) are more likely to gain an academic position in a top university in China (Model 4 of Table 2).

In addition, the key findings on academic productivity and inbreeding effect may imply that returnees with high academic productivity are more likely to be able to return to their home universities after Ph.D. graduation, and thus work in a top university. As around 95% of the home university that overseas Ph.D. degree holders chose to return to are top universities in China, this study further examines whether academic productivity can positively predict the likelihood that Ph.D. graduates return to their home universities. The results are shown in Model 1 of Table 3.

The results lend supportive evidence to our argument about the importance of academic productivity. The likelihood of working in a home university for Ph.D. graduates with 4–9 publications is 2.5 times of those without a publication (exponentiation of 0.901, which is the coefficient of the dummy variable of 4–9



**Table 3** Logistic regression models of working in a top university and returning to the home university

	<i>Returning to the home university (1)</i>	<i>Employment in a top university (but not home university) (2)</i>
Gender (ref. = female)	0.285 (0.255)	– 0.038 (0.254)
Age	1.331 (0.868)	0.926 (0.749)
Age square	– 0.019 (0.014)	– 0.013 (0.012)
Marital status (ref. = single)	0.242 (0.263)	0.310 (0.262)
Top university of undergraduate degree (ref. = non-Project-211)	0.414 (0.293)	0.152 (0.278)
<i>Host country of Ph.D. study (ref. = Asia Pacific countries)</i>		
Germany	0.202 (0.365)	– 0.738 (0.384) <sup>+</sup>
France	– 0.661 (0.443)	– 0.608 (0.366) <sup>+</sup>
The UK	– 0.165 (0.534)	0.230 (0.634)
Other European countries	0.187 (0.373)	– 0.662 (0.397) <sup>+</sup>
The US and Canada	– 0.894 (0.607)	0.202 (0.635)
English-speaking country (ref. = non-English-speaking)	0.526 (0.462)	– 0.724 (0.527)
<i>Ph.D. discipline (ref. = Science stream)</i>		
Arts and humanities	0.152 (0.580)	1.534 (0.551)**
Social sciences	0.099 (0.434)	0.057 (0.437)
Ranking of the host university (ref. = non-top 100)	– 0.082 (0.283)	0.078 (0.287)
Supervisor's rank (ref. = non-full professor)	– 0.021 (0.347)	0.219 (0.365)
<i>International publication during doctoral study (ref. = no publication)</i>		
1–4 publications	0.287 (0.332)	0.023 (0.310)
4–9 publications	0.901 (0.395)*	0.504 (0.412)
10 publications or above	1.141 (0.490)*	1.080 (0.542)*
Constant	– 24.720 (13.881) <sup>+</sup>	– 17.265 (11.962)
Observations	441	342

The sample of Model 2 is restricted to those who did not return to their home university for work. Standard errors in parentheses. \*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$ , + $p < 0.1$ .



publications), and the likelihood for Ph.D. graduates with 10 or more publications is 3.1 times of those without a publication (exponentiation of 1.141). The results suggest that returnees with higher research productivity are more likely to work in their home university, which is usually an elite university.

Considering the results of the inbreeding effect (Models 5–6 of Table 2) and the results of productivity (Model 1 of Table 3), the present study has found that whether the returnees return to their home university may not imply particularism (e.g., in the form of social relations from the alma mater as a preferential hiring standard), but their loyalty and commitment to their alma mater where they obtained their academic degree before doctoral study. Further studies are needed to investigate the mechanism of Ph.D. returnees' return to their alma mater for work.

The research productivity, which implies universalism with emphasis on the merit of academic contribution, plays a more important role in determining whether the returnees are able to work in their home university, which is an elite university. To investigate the effect of academic productivity, this study further restricted the analysis sample to returnees who do not work in their home university (Model 2 of Table 3). The results suggest that academic productivity during doctoral study has a positive effect on returnees' employment in a top university. Compared with those without any publication during their doctoral study, overseas Ph.D. degree holders with 10 or above publications are more likely to obtain an academic position in a top university after they return to China.

The importance of the international publication in determining returnees' academic job acquisition in an elite university could be better understood in a boarder context of the recent Chinese policy change of higher education. In October 2015, China's State Council (2015) issued the "Overall Plan for Coordinately Advancing the Construction of World First-class Universities and First-class Disciplines". As a national strategy, this "double first-class" initiative aims to develop several Chinese elite research universities and university departments into world-class universities and disciplines (State Council of the People's Republic of China, 2015).

In order to enhance the global competitiveness of universities, Chinese government and the universities have been engaging in a series of international benchmarking exercises seriously (Deem *et al.*, 2008). Since the "double first class" initiative was launched, the international performance indicator of publications in international academic journals has been gaining greater emphasis and regarded as one of the quick ways to obtain immediate effects in enhancing university's performance (Song, 2018). The research productivity, which is usually measured by number of international publications, is an important recruitment criterion of an elite university. In addition, an elite university has incentives to recruit Ph.D. returnees, as the returnees have overseas learning experience and are familiar with international academic norms, which are expected to be advantages for them in publishing in international journals.



In conclusion, this study adopts the theoretical framework of the norms of universalism and particularism in the stratification of academic career attainment to examine the academic position acquisition of Ph.D. returnees. The results suggest that the pre-employment productivity plays a crucial role in determining returnees' academic job acquisition in an elite university in China. The findings support the norm of universalism in academic career which implies the universal hiring standard of emphasizing the contribution to the advancement of scientific knowledge. In contrast, the insignificant effect of pure prestige of the university of doctoral study does not support the norm of particularism which applies the special standards preferential to the characteristics of irrelevant to academic contribution. Nevertheless, the study finds that more than 20% of Ph.D. returnees in our analysis sample return to their alma mater, which is usually a top university. Meanwhile, returnees with higher research productivity are more likely to work in their alma mater in China. Therefore, it merits further study whether and how the norms of particularism and universalism coexist in shaping the stratification of academic career attainment of international high-level talents.

## Discussions and Conclusions

### International learning and job acquisition

Setting the Chinese case into international and comparative perspectives, this study has found a similar trend emerging in mainland China when student mobility and job prospects are under review. According to Teichler (2011), international mobility has become a popular trend not only in Asia but also in Europe. Respondents are also more likely to work in organizations with an international scope and to be employed overseas (Teichler, 2011). Similarly, geographic mobility is interpreted as an approach to achieve higher expected returns to individual human capital investments (Faggian and McCann, 2009). Internationalizing the learning experience and studying abroad contribute positively to graduate employment, but we should not treat it as the single dominant factor affecting job prospects of university graduates (Mok *et al.*, 2018).

Comparing the findings generated from the present study with particular reference to student perspectives on internationalizing learning and job prospects with other international research, it could be better understood why Chinese students are keen on overseas learning, especially when the Chinese government provides incentives to these Ph.D.s for carrying their good learning and relevant work experiences back home. Our findings demonstrate strong links between publication and the academic job market, which is also consistent with other international research related to academic job acquisition and research productivity (Waaier *et al.*, 2018).

In recent years, Chinese elite universities have been facing challenges in improving their research profiles to boost their rankings in the global university league (Yang and You, 2018). Recognizing the crucial roles of high-talents

professionals, research universities actively attract talents as faculty members to enhance their academic performance. As one of the international benchmarking indicators, research productivity becomes an important recruitment criterion of recruitment exercise of faculty members. It is against this background that Ph.D. returnees with overseas learning experience could have the advantages in attaining jobs in elite universities. This study finds that returnees with more internationally recognized publication are more likely to work in a top Chinese university. In fact, Ph.D. returnees are found to bring positive impacts in fostering international research collaboration (e.g., Jiang and Shen, 2019; Shen and Wang, 2018). The new changes require Chinese government and universities to carefully analyze the policies and practices how to groom, attract, and retain academic talents.

Similarly, studies of other Asia Pacific countries (e.g., Harman, 2003; Jung, 2018; Rizvi, 2000) found that returnees after completing their studies abroad found comparative advantages in obtaining faculty position in elite universities. The analysis of present study focuses on employment of Ph.D. returnees in China's academic job market and reveals an unclear conclusion whether China's Ph.D. returnees have more competitive advantages than domestic doctoral degree holders in gaining academic positions in elite university. Such meaningful comparison calls for new data of both groups.

### **International learning and intensified inequality**

Nonetheless, the massification of higher education and the strong urge for internationalizing the education experience has indeed intensified the "position competition" among Chinese students, particularly when education becomes more privatized and marketized (Mok and Jiang, 2017). Recent studies about the expansion of higher education in China further suggested that students from better socioeconomic backgrounds enjoy far more advantaged position when being admitted to top tier universities in Mainland China, whereas poor students find difficulties in climbing the social ladder (Luo *et al.*, 2018). Furthermore, over-qualification is more common among graduates from specific fields. For example, it is found highest in fields related to services, agriculture and veterinary, social sciences, and business in Spain and Germany, while it is less likely happen in systems with more occupationally focused degrees (Ortiz and Kucel, 2008).

The present article has critically examined how the Chinese government proactively responds to the liberalist globalization by active engagement in nurturing talents to sustain global competitiveness. State investments in grooming talents with global and international outlooks, relevant knowledge, and skill sets for the highly competitive environment are definitely positive strategies for nation building. These may also inculcate a stronger sense of national pride when Chinese graduates from overseas studies are expected to make significant contributions to the country's development. Nonetheless, such policies and strategies have widened



the gap between the “haves” and “have nots.” For students/graduates who fail to enjoy such “state investments” of generous scholarships to be groomed as future leaders of national development projects, they would certainly feel discriminated. Undoubtedly, some of them may question the value of international learning, criticizing how international learning favors the elites and the advantaged groups while undervaluing and even discriminating against the disadvantaged groups.

Analyzing the present case from a broader sociological perspective, the stratification and differentiation of the development of higher education has undoubtedly perpetuated inequality across different social groups in mainland China. It explains why some local students in the mainland have begun to question the government for providing too generous packages for international students for asserting China’s “soft power” at the expense of the interests of the locals (Ren, 2016; Li, 2018a, b). This article also presents a case vividly showing how higher education is now confronting national/global disequilibria, as Simon Marginson recently proposed, with the rise of populism and destabilization of politics in some countries, tensions over migration, growing criticism of international education for favoring elites, and intensifying inequalities (Marginson, 2018). If the Chinese government fails to handle such local–global tensions carefully, the county may fall in similar traps that her Western counterparts confront in the context of rising nationalism against globalization.

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## Notes

1. See details about Scopus on its official website: <https://www.elsevier.com/solutions/scopus>.
2. See details about Project 211 on the website of MOE: [http://www.moe.gov.cn/publicfiles/business/htmlfiles/moe/moe\\_846/200804/33122.html](http://www.moe.gov.cn/publicfiles/business/htmlfiles/moe/moe_846/200804/33122.html).

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