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ISSN: 2365-9793

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ABSTRACT

Quest for Talents: Attraction and Retention of Highly-Skilled Overseas Chinese in the United States and Canada*

Using OLS, probit, and semi-nonparametric regression analysis on survey data, this article examines the factors associated with the successful economic integration of Chinese returnees, as indicated by their career and income satisfaction. Those motivated to return by talent policy are substantially more likely to be economically satisfied and satisfied with their career. The desire to find a marriage partner also positively correlates with satisfaction, while researchers are less likely to be satisfied than those in other professions. Moreover, concerns about spousal employment, trade relations and the rule of law correlate with a lower willingness to return among overseas Chinese.

JEL Classification: J15, J18, J24, J28, J33, J61

Keywords: attraction, retention, overseas Chinese, talent management, talent policy, career satisfaction, income satisfaction

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* Financial support from the Stephen Jarislowsky Foundation, the National Social Science Foundation of China research grant (19BGJ005), and the Social Science and Humanities Research Council of Canada (890-2020-0051) is gratefully acknowledged. The authors declare that they have no conflict of interest.

Introduction

The cultivation, accumulation, utilization, and retention of high-level talents are pivotal determinants of a nation's development potential and prospects. Competition for high-level talent among nations is becoming increasingly intense, and the importance of talent is being increasingly recognized in countries such as China (Cao et al. 2020). This has directly led to heightened attention from governments at all levels, universities, and enterprises to the strategic role of high-level talent, including overseas Chinese and groups of students who study abroad. As a traditional non-immigrant country, overseas immigrants constitute only 0.07 percent of China's total population (World Population Review 2023), and its exploration of and practice in immigration policy and global talent policy are still in the early stages.

Although China launched ambitious talent programs starting nearly three decades ago, including the "Hundred Talents Program", "Yangtze River Scholars Program", and "Thousand Talents Plan", the emergence of a new trend in various countries to intensify the attraction and retention of high-level talents has significant practical implications for theoretical advancements surrounding this topic and China's future accumulation of international talent. Adapting to recognize these trends, China has been active in implementing policies to encourage return migration in recent decades (Cao et al. 2020).

This study evaluates the factors associated with the career and income satisfaction of Chinese returnees – those who emigrated from China to an overseas country and then returned to

China. These measures of self-reported satisfaction figure to have substantial implications for the likelihood of returnees remaining in China for the long run after returning. As one of our key variables of interest is the extent to which talent policy motivated the decision to return, our results are a measure of the effectiveness of China's talent policy in fostering successful social and economic reintegration for Chinese overseas returnees. The reasons returnees come back to China, how they fare after returning, and what can be done to attract more overseas Chinese back to China are not well understood (Hao et al. 2017). This paper is designed to help further this understanding.

The rest of this article is structured as follows. We first focus on the situation faced by Chinese nationals living overseas, as there have been several "push" factors that may have motivated overseas Chinese to return to China in recent years. We then describe the trend of growing numbers of Chinese returning home with various "pull" factors in China, with focus on talent policy. The push/pull factors behind this trend motivate our theoretical framework. Next, we detail our data and methods, followed by our results and our interpretation of them. The paper concludes with a summary section.

Current predicament of overseas Chinese

Scholars have found that Chinese individuals constitute a significant proportion of foreign-born researchers, among highly skilled occupations, in the United States and Canada, contributing significantly to research and development.

In the United States, immigrants constitute 17 percent of high-tech workers and 14 percent of the total labor force. The proportion of highly-skilled immigrants in STEM (Science, Technology, Engineering, and Mathematics) occupations is even higher, with 29 percent of STEM degree holders and 52 percent of STEM Ph.D. degree holders being born outside the country (Kerr 2020). In Canada, 26 percent of workers, in 2019, were born abroad. Between 2016 and 2021, over 1.3 million new immigrants chose to permanently reside in Canada, contributing to 71 percent of the country's population growth and 80 percent of labor force growth (Government of Canada 2022). Asian countries such as China, the Philippines, and India are the primary source countries of recent immigrants to Canada (Statistics Canada 2022a).

Among international students who receive higher education abroad, the number of Chinese students is noticeably high. Approximately 373,000 Chinese students enrolled in higher education institutions in the United States in 2020-21 (U.S. Embassy and Consulates in China 2021) while 151,690 enrolled in United Kingdom universities in 2021-22 (Universities UK 2022), accounting for the largest group of international students in both countries. In Canada, Chinese students made up the second largest group of international students in the country after India with about 117,000 students, representing 22.1 percent of the total international student population (Statistics Canada, 2022b). China accounts for one of the top immigrant source countries in many countries worldwide (Organization for Economic Co-operation and

Development 2023), and while the trend towards returning to China has accelerated, there are still many Chinese residing overseas.

At the higher levels of academia, Chinese talents have made substantial contributions to overseas academic research. In the past few decades, China has been a vital source of scientists in the United States in particular. Data from LinkedIn shows 100 and 140 top-tier Chinese scholars among the members of the National Academy of Sciences and the National Academy of Engineering in the United States respectively. Additionally, over one hundred Chinese professors teach at top American universities such as Harvard, Princeton, and Yale. Approximately 200,000 outstanding graduates from China's 985 universities work in the United States, with the majority going into internationally cutting-edge industries like IT, internet, electronic engineering, and computer science.

Despite their noteworthy contributions, the situation for Chinese individuals in North America has become increasingly challenging in recent years. Due in part to the impact of the COVID-19 pandemic, there has been a notable increase in discrimination and resentment towards Chinese and other Asian immigrants in Canada and the United States. Particularly since the outbreak of the pandemic started in Wuhan in late 2019, many overseas Chinese have become innocent scapegoats for the global public health crisis. Reports indicate that anti-Asian incidents in the United States increased by 77 percent in 2020 (U.S. Department of Justice 2021), followed by a massive increase of 339 percent in 2021 (NBC 2022). Discrimination may manifest itself along various identity characteristics. East Asians can be

racially discriminated against due to observable appearance, whereas overseas Chinese could face ethnic discrimination because of their nationality and even specific sentiment against mainland China.

In 2018, the U.S. federal government launched the "China Initiative." This program, using economic espionage and intellectual property theft as its supposed justifications, systematically investigated Chinese scholars and researchers with ties to China. The initiative faced severe criticism from the academic community and civil rights advocates due to its racial targeting and undermining of international collaborations, hence the federal government announced its termination in early 2022. However, substantial actions related to the initiative still exist. This initiative has publicly investigated about 150 scientists, with more than 28 of them being criminally charged; only four were professors of Chinese descent, and none were convicted of espionage or intellectual property theft (Greenfield 2021).

Anti-Chinese sentiment has also been on the rise in Canada. Between 2020 and 2021, reports of racist incidents against Asians increased by 47 percent while discrimination against Asians in the workplace more than tripled (348 percent; CBC 2022). Professor Peter Wang and his team at Memorial University of Newfoundland conducted a separate survey on discrimination experienced by Chinese individuals in Canada. When asked if they had experienced discrimination in Canada, over half of the respondents said "yes," and 60.4 percent believed that Asians in Canada faced more discrimination than other minority groups.

When questioned about how the government could effectively stop discrimination against Asians, many Chinese people in Canada (38 percent, n=204) believed that introducing new anti-racism legislation was the most effective way to curb discrimination against Asian residents. Alongside stricter legal enforcement, respondents also believed that public campaigns (12.5 percent) and mainstream media (15.8 percent) must promote anti-racism more to the public, and educational materials in schools should also include more anti-discrimination content (7 percent) to help gradually eradicate the hostility towards Asian communities (Wang et al. 2022).

The pervasive presence of anti-Chinese sentiment may even escalate into violent acts, thereby threatening the personal safety of Chinese living abroad. It is also disheartening that 80 percent of respondents think that their situation will not improve in the future. Many Chinese Canadians choose to remain silent or only share their experiences with friends and family to avoid face-to-face confrontation when encountering discrimination, rather than seeking help from relevant authorities or expressing dissatisfaction to the discriminators. Further investigation by scholars reveals that the tolerance of Chinese immigrants is partly due to their general lack of knowledge and understanding of the local anti-discrimination resources available (Wang et al. 2022).

Adaptive strategies of overseas Chinese and the emerging trend of global talent returning to home countries

Concerns of overseas Chinese about their current situation and their negative outlook on the future may drive them to return to China. The U.S. government's "special attention" and sanctions toward Chinese scholars further accelerated their departure. The implementation of the "China Initiative" in 2018 triggered panic among the academic community, making the trend of returning home more prevalent among senior Chinese academic researchers in America. Both the initiative and the COVID-19 pandemic are significant push factors that prompted many Chinese scientists to return to China. In the subsequent three years, a conservatively estimated total of 3,878 Chinese scientists left American research institutions to conduct research in China (Xie et al. 2023). As this research indicates, about 1,062 researchers left the United States to return to China for research work in the first year after the implementation of the "China Initiative". In 2021, this trend reached a 20-year peak, with 1,490 individuals returning to China. Figure 1 (Xie et al. 2023) shows the trend of Chinese-origin academics leaving the United States to return to China.

[Insert Figure 1 here]

After 2018, the trend in the number of people returning to China has been rising noticeably for junior and senior researchers from engineering and computer science, mathematics and physical science, and life science (Xie et al. 2023). From 2020, the number of Chinese students studying abroad sharply declined due to the dual impact of the pandemic and policy changes, dropping from 700,000 in the previous year to 280,000. Meanwhile, the number of

returning Chinese students increased from 580,000 to 780,000 (National Bureau of Statistics of China, 2022).

Another study found that, based on published papers, the number of scholars with dual affiliations to Chinese and U.S. institutions has decreased by more than 20 percent in the past three years (Van Noorden 2022). The number of collaborative papers between researchers from China and America recently experienced a decline for the first time. A survey of Chinese scholars in the United States reveals that they are undergoing intense unease and fear psychologically: 35 percent of respondents felt that they were unwelcome in the United States; 72 percent were deeply concerned about their safety; 42 percent were afraid to conduct research; 65 percent were apprehensive about cooperating with China; and 86 percent believed that it has become harder for the United States to recruit international students.

The various concerns of Chinese scholars inevitably affect their work attitude and intention to return to China: 45 percent of researchers who had previously received federal grants expressed a preference to avoid applying for federal funding to prevent the legal liabilities that might arise from errors in forms or disclosures as well as pervasive restrictions and investigations from the government. Moreover, 61 percent of the researchers considered leaving the United States. Further analysis indicates that comparatively, faculty members from engineering, computer science, life science, federal grant recipients, senior faculty members, and males had more concerns about conducting research in the United States than other researchers surveyed (Xie et al. 2023). Their primary concerns were “investigations and

restrictions on Chinese researchers by the U.S. government" (67 percent) and "hatred and violent behaviors aris[ing] from anti-Asian sentiment in the United States" (65 percent). Figure 2 from Xie et al. (2023) shows various psychological and intention indicators for Chinese scholars in the United States related to the decision to stay in the country or return to China.

[Insert Figure 2 here]

Regarding pull factors, Professor David Zweig has proposed 'shortage theory,' positing that overseas Chinese will return if they are able to utilize their advanced human capital upon return to China (Wu et al. 2024). While economic considerations are of course important, personal factors are also of high importance for Chinese considering returning to China. Those with younger children (before junior high school age), supportive spouses, and elderly parents with nobody to care for them are more likely to return, as are overseas Chinese who believe China needs technology exchange (Wu et al. 2024). Family obligations are often cited as a reason to return to China, and the comparative ease of finding a job in fields such as academia for Chinese who return relative to those who stay abroad is another pull factor (Liu et al. 2022; Zhang et al. 2022). Cultural factors are certainly important as well, and many returnees seek stability across multiple facets of life (Li et al. 2018). At the individual level, returnees seem to have certain personal and professional characteristics. Among returnee academics, the top-caliber Chinese academics overseas usually do not return, but many returnee academics are highly-skilled (Shi et al. 2023). Greater opportunities to run their own

labs in China are attractive, as many high-achieving Chinese STEM academics abroad can struggle to gain tenure-track positions due to the nature of hyper-competitive academic institutions in the United States and elsewhere (Shi et al. 2023).

There are several deterrents for returnees based on factors in China, as well. Returnees are sometimes concerned about bureaucracy, a potential lack of autonomy, and the reliance on Chinese social networks in Chinese institutions (Li et al. 2018; Zhang et al. 2022). Moreover, social reintegration can be difficult, and returnees are sometimes considered as 'foreigners' by some who have not left China, which can lead to discrimination (Zhang et al. 2022).

Major Chinese talent policies

Implemented in 1994, the Hundred Talents Program (HTP) was the first Chinese talent policy aimed at overseas talents (Federal Bureau of Investigation [FBI] 2015; Yang 2015). Despite its status as a landmark policy, it has attracted very little attention from English researchers. This is probably because it was succeeded by numerous more ambitious policies of a similar nature. As its name implies, the HTP targets 100 participants annually, and it is still active to this day (Weinstein n.d.). Participants in the program must be young scientific researchers who can take on leadership roles in their academic field at Chinese institutions (FBI 2015). Many HTP members indeed work in high-level research, or research-adjacent, positions, occupying titles such as laboratory director or chief scientist, or working in high-level leadership positions within Chinese Academy of Sciences organizations (FBI 2015).

Although overseas researchers are targeted, exceptional researchers already based in China can also avail of the program (FBI 2015; Weinstein n.d.). Benefits include wages, housing, and research funding of roughly 2 million RMB, which is equivalent to about USD $280,000 (Weinstein n.d.). Participants must live in China for at least six months of the year, and the HTP is open to those not of Chinese origin (Weinstein n.d.). However, in practice, Chinese talent program participants are overwhelmingly of ethnic Chinese background (e.g., Shi et al. 2023).

Another important talent policy is the Changjiang Scholars Program (CSP). CSP was instituted in 1998 (Kim and Kim 2020; Zhu 2019), shortly after the landmark HTP, and remains active at the time of writing (Weinstein n.d.). The program was jointly established by the Chinese Ministry of Education (MOE) and an organization affiliated with Hong Kong business magnate Li Ka-Shing (Jiang 2018; Kim and Kim 2020). Its objective has remained consistent: to attract outstanding young and middle-aged individuals, cultivating a group of world-class academic leaders within China (Zhu 2019). Those selected by the program are designated as either a Changjiang Chair Professor or a Changjiang Distinguished Professor (Jiang 2018). Both types of professorships hold many similar responsibilities, including producing cutting-edge research, nurturing young scholars, leading research teams to internationally recognized achievements, and pursuing innovative methods to develop the professor's field (Jiang 2018). Changjiang Chair Professors are additionally tasked with promoting collaboration between their universities and renowned academic institutions overseas (Jiang 2018). Distinguished Professors must be full-time staff while Chair

Professors can be part-time, but in that case, they must spend at least two months of the year in their designated Chinese university while working full-time in a leading overseas institution (Jiang 2018). From 1998 to 2014, 2,251 scholars were selected under the CSP (Kim and Kim 2020), with an annual target of 300, according to Weinstein (n.d.). Over 90 percent of Changjiang professors have overseas experience (Kim and Kim 2020; Li et al. 2015). The program is exemplary of how talent policies in China tend to evolve with time, undergoing four major amendments in the years 1999, 2004, 2011, and 2018 (Zhu 2019). In 2005, CSP expanded its target audience to scholars in the social sciences and humanities (Li et al. 2015). Certain requirements (i.e., the age limit) can differ for scholars in sciences compared with those in the humanities (Weinstein n.d.). Changjiang scholars receive attractive wages and bonuses as benefits for being in the program (Weinstein n.d.), which is considered one of the most prestigious academic honors in China (Jiang 2018).

The Thousand Talents Program (TTP) is the most prominent, and likely the most successful, Chinese talent policy aimed at overseas talents (FBI 2015; Yang 2015). It was the first national-level talent program aimed at overseas talents, and, as with prior programs, were overseen at the ministry level (Yang 2015). Established in 2008, the TTP aims for 1,000 or more participants per year (Weinstein n.d.) to work in one of four domains: innovative national projects, important disciplinary areas and laboratories, state-owned enterprises or financial institutions, or high-tech industrial development zones (Yang 2015). The program also has certain subprograms, such as one aimed specifically at younger applicants (FBI 2015), which has gained attention in the literature (Marini and Yang 2021; Shi et al. 2023).

Once again, the TTP predominantly recruits individuals in STEM fields, although it is open to those with other backgrounds (Marini and Yang 2021). Program participants are sorted into one of two groups: innovative talents and startup talents – for the latter, program participants must own intellectual property rights that are promising and marketable (Kim and Kim 2020). Wages and benefits under the TTP are very generous (see Shi et al. 2023; Kim and Kim 2020), although many positions under the program are contract-based (Yang 2015). Complementing the TTP, the Ten Thousand Talents Program was announced in 2012 and overseen at the national level (Xu 2024; Yang 2015). Its goal was to support ten thousand high-level talents in STEM and social science fields over a ten-year period (Yang 2015).

Talent policies do not operate in a vacuum. There are numerous other policies and programs that help determine their level of success. As an example, since many talent programs focus on academics, policies relating to universities have a substantial influence on those selected by the various talent policies in China. Project 985, introduced in 1998 with the goal of increasing the global competitiveness of China's top universities (Zhu 2019), is a prominent example of such a program. The project created a list of universities with the potential to become world-leading institutions (Zong and Zhang 2019). It was considered a partnership, with funding coming from the MOE, provincial and municipal governments, and ministries that are responsible for the universities (Zhang et al. 2013). Massive investment in selected areas was a principal feature of the project (Zhang et al. 2013; Zong and Zhang 2019). Nine of the universities included in Project 985 are designated as tier one, receiving most of the project's investment; 30 are slotted into the second tier (Zong and Zhang, 2019). The

program is no longer active, but it underwent three separate phases during its lifetime. The first phase emphasized infrastructure development, the second phase focused on consolidating the first phase achievements and building innovation 'platforms,' while the final phase centered around human capital and building innovation capacity (Zong and Zhang 2019).

This review is limited in scope because of the sheer number of talent programs in China. To comprehensively review programs administered at a given level and at multiple levels would require a dedicated article, at a minimum. This section therefore focuses on certain major programs. Talent programs that are aimed at domestic residents within China or specific foreign experts not of Chinese origin are outside the scope of this paper. Xu (2024) provides background on policies in the latter category, while researchers such as Liu (2022) cover talent policies' effects on domestic residents. Moreover, regional and local governments have their own talent policies, which typically follow the lead of major policies at the national or ministry levels (Jiang 2018; Xu 2024; Zhu 2019). There is very little research into regional or local programs, with Xu's (2024) Beijing-centric paper a notable exception.

Theoretical framework

Early explorations into trends of the global movement of talent focused on general talent. Most scholars construct their argument from a human capital perspective, contending that the global movement of talent is primarily driven by economic factors. Factors influencing

immigration patterns of high-level talent include the international financial market (Grubel and Scott 1966), wage disparities (Todaro 1969), and the push-pull theory that emphasizes the combined effect of push factors from the country of origin and pull factors from the country of destination (Hauser and Duncan 1959; Lee 1966). However, as research has proceeded to a new stage, scholars have shifted their focus to high-level talents, proposing that economic factors are no longer necessarily the dominant determinants of the geographic distribution of such talent. The directions of their flows are also influenced by cultural factors, overall environmental factors, the strength of support from immigration policy and national talent policy, financial incentives, and multiple other drivers (Shapiro 2006; Mullings 2006; Buch et al. 2014; Lawson and Shibayama 2015; Huang 2017; Wang and Zhao 2017).

Recent research on the stocks and flows of global talents has achieved noticeable progress, yet there remain many areas awaiting exploration. Firstly, existing studies almost exclusively explore the factors influencing talent flows from a macroeconomic perspective, overlooking the individual needs of high-level talents from a microeconomic or social perspective. Furthermore, past scholars have overly attributed the mobility of high-level talents to the interaction of national needs and policy impacts, but talents' social, cultural, and psychological needs are also crucial. Secondly, most existing research on the comparative analysis of national talent competition strategies remains at a descriptive stage, with insufficient analysis of the comprehensive impact of existing policies in dynamic environments and in light of different countries' political and economic backgrounds, social

conditions, and cultural climates. Additionally, different types of overseas high-level talents have diversified needs, and a policy framework simultaneously catering to these varying needs should be established in time.

This study draws on theories like Maslow's Hierarchy of Human Needs from management psychology, Attachment Theory from organizational behavior, and Social Network Theory from sociology, proposing two innovative approaches called the "3A needs structure" (Achievement, Affluence, Attachment) and the competitive "3R system" (Recruitment, Remuneration, Retention) for overseas high-level talents. The 3A needs structure encompasses the personal pursuit of achievement, economic satisfaction (AKA affluence), and cultural and environmental attachment. Correspondingly, to meet these needs of global talents, the competitive 3R system contains three social, economic, and environmental elements, among which are attractive opportunities, economic incentives, and cultural/social attachment. These approaches mesh well with national talent strategy frameworks.

The research posits that the micro-foundation of the individual 3A needs structure of overseas high-level talents intersects with the macro-foundation of national talent competition strategies and the policy practices of various countries that collectively determine the construction of the national 3R system for global talent programs and immigration policies, as well as the competitive policy system more generally. Therefore, this article applies both the 3A needs structure and the competitive 3R system using data collected from Chinese overseas returnees to assess their needs structures, experience post-return, and corresponding

policy implications. Conceptually, we define the 3A variables as aspirational variables relating to the motivations of returnees whereas the 3R variables relate to the realities of the meso-environment or macro-environment that are largely outside the returnee's control.

Data and methods

Data

With the emerging trend of overseas Chinese returning to China, how to attract and retain these high-level talents has become a crucial and pressing issue that China is striving to address. To this end, we conducted an empirical analysis of related issues through the National Social Science Fund of China (NSSFC)-supported project "Comparative Study on the Overseas High-level Talent Competition Strategy and Immigration Policy of China and Developed Countries".

This project conducted a survey of overseas talents at the micro-level, collecting their opinions on their economic outcomes, motivations behind actual or potential returns to China, and other related data. The study utilized two questionnaires, with one titled "Survey on Overseas Individuals' Willingness to Work or Start Businesses in China" (Survey 1) and another one titled "Survey on Employment and Entrepreneurial Conditions of Overseas Individuals in China" (Survey 2). The design of specific questions in the questionnaires was informed by the 3A needs structure and 3R competitive talent management system, covering multiple aspects such as overseas talents' perceptions, attitudes, and working status regarding

domestic salary levels, medical insurance, development prospects, talent policies, cultural atmosphere, and family ties. Survey 1 has a sample of 92 respondents, whereas 110 individuals responded to Survey 2. The focus of this paper is on the Survey 2 data, as it covers those living in China as opposed to Survey 1 data, which covers individuals living outside of China. However, Survey 1 data covering individuals overseas is combined with Survey 2 data in a couple of our ancillary models. The descriptive statistics of the Survey 2 dataset and the supplementary merged dataset will be presented in the methods subsection.

The results of the two surveys were collected between January 2021 and February 2022 using a snowball sampling method. Leveraging the research team's networks and social media platforms such as WeChat, early participants referred others who fit the target demographics and human capital characteristics of the research project. Except for the demographic and human capital characteristics data about respondents, most survey questions were on a five-point Likert scale.

Our empirical analysis primarily uses the 3A needs structure and the 3R competitive talent management system as its theoretical basis, pulling together the consideration of personal needs with the consideration of push/pull factors in the macro-environment. The 3A needs structure includes overseas talents' pursuit of career achievement (Achievement), aspiration for material things such as satisfactory salary and company benefits (Affluence), and reliance on cultural and environmental identity (Attachment). On the other hand, the 3R competitive talent management system encompasses three elements corresponding to those mentioned in

the 3A needs structure, including attractive talent policies, working conditions, and entrepreneurial and innovative environments to attract overseas high-level talents (Recruitment); providing them with material rewards based on their abilities upon return such as salary, bonuses, benefits, and non-material rewards (Remuneration); and retaining high-level talents through various human resource management practices/factors like interpersonal relationships between workplace colleagues and other social roles (Retention). Under the 3R competitive system, companies that can effectively attract overseas high-level talents who can contribute to China's economic and social development needs while giving them sufficient recognition and reasonable rewards, and creating a positive work environment and corporate culture, are more likely to retain high-level talents in the increasingly competitive global talent market.

Table 1 and Table 2 display the push/pull factor variables that were included in both surveys as well as their concordance with the 3A/3R theoretical framework. Note that these tables include additional variables that are not covered in our regression models. However, we believe that they provide interesting information on the motivations to return to China and help outline how we implement our theoretical framework. Descriptive statistics on the regression samples will be covered later in the article. For comparative purposes, Table 1 displays the relevant statistics for overseas Chinese who still reside overseas, while Table 2 displays the same statistics for Chinese who have returned to live in China after living overseas. Table 1 therefore concerns the perceptions of currently overseas Chinese regarding Chinese pull factors, whereas Table 2 concerns the perceptions of returnees regarding the

importance of various Chinese pull factors in their decision to return. Respondents ranked the factors in each table in terms of importance in their actual decision to return (or potentially return) on a one to five scale, with five equaling very important.

[Table 1 here]

[Table 2 here]

Not surprisingly, the average rating of those who have returned is higher than the average rating of those currently overseas for each pull factor. Across pull factors, the average rating of the currently overseas cohort ranges between 2.18 and 3.37 (between unimportant and neutral) compared to an average between 3.91 and 4.54 (approximately equivalent to an 'important' rating to an "very important" rating) for the returnees. Considering nearly 90 percent of the overseas cohort is willing to return, those who are most enthusiastic about conditions in China are those who are actually likely to return or have already returned. The most important factors, on average, for the overseas group are a prosperous economy (3.37), low crime rate (3.34), and family reunion (3.27). Non-economic factors are therefore quite important for the overseas group who may be considering a return. For those in Table 2 who have already returned, economic factors like the potential for career development (4.54) and a prosperous economy (4.45) appear to be the most important in aggregate, followed by politically related pull factors such as a low crime rate (4.50), stable political environment (4.39), and favorable talent policy (4.28). Social factors including reuniting with family (4.39) and living a convenient lifestyle (4.33) are highly important as well, showcasing the

variety of factors that returnees and potential returnees consider when choosing where to live. This picture aligns with recent literature, which indicates that many different factors are critical for returnees.

Ultimately, this article seeks to determine what factors influence the career satisfaction and income satisfaction of Chinese returnees. These variables are coded based on responses to the subjective questions "are you satisfied with your career/business development in China" and "are you satisfied with your current income from employment or business in China." Both questions allow for responses on a five-point scale, from very dissatisfied (1) to very satisfied (5); a response of 3 indicates neutral satisfaction. Though related, income and career satisfaction are distinct concepts (see Medgyesi and Zólyomi 2016 for a discussion of the twin concepts of job and financial satisfaction). Some researchers consider career/job satisfaction and income/financial satisfaction separately (e.g., Ireri 2016; Song et al. 2020). Others conceive of income/financial satisfaction as a determinant of career/job satisfaction (e.g., Yap 2011). We decided to separate the two concepts because many early career researchers targeted by talent policies have not yet reached their earning potential while being satisfied with non-pecuniary aspects of academic life such as autonomy and the pursuit of intellectual interests. Both financial and non-financial aspects are important for returnees and potential returnees.

Methods

As our main dependent variables (career satisfaction and income satisfaction) are ordinal, we first considered ordered probit or logit models. Since the sample of responses in some of the ordinal categories can be small, we opted for different models better suited for a smaller sample. Our first specification is the ordinary least squares (OLS) model with the satisfaction variables on a five-point scale. Then, we utilized bivariate probit. For this model, we recoded the two dependent variables, career satisfaction and income satisfaction, into binary variables. The recoded variables are equal to one if a respondent indicates that they are satisfied or very satisfied and equal zero if the respondent is neutral, dissatisfied, or very dissatisfied. This binary variable approach increases sample size at the expense of granularity. Next, our third and final career/income satisfaction model specification is the semi-nonparametric (SNP) approach developed by Gallant and Nychka (1987). This specification allows for less distributional assumptions than our probit models (De Luca 2008) and once again uses the recoded binary satisfaction variables. We ran each model with career satisfaction as the dependent variable, then ran them again with income satisfaction as the dependent variable. The control variables were the same across all regressions and will be detailed in the upcoming section.

To test the validity of our results, we ran additional logit models that produced similar results to the equivalent probit models. Thus, our results give an indication of the labor market and personal characteristics associated with the successful reintegration of returnees into the Chinese economy. They also demonstrate the link between the economic satisfaction of returnees and the importance they place on various pull factors.

In addition to our primary models, we analyzed the concerns that some returnees and overseas Chinese may have about living in, or potentially returning to, China. Thus, for this part of the paper, we merged responses from those living overseas (from Survey 1) and those who have returned to China (from Survey 2). This analysis provides insights into the factors that might deter overseas Chinese from returning to their home country. We believe the analysis provides supplementary information on the push factors within China, parallel to the return motivation 'pull factors' studied in the career and income satisfaction analysis. Here, our binary dependent variable is the willingness to return. For returnees, the variable is always coded to equal one, indicating an observed willingness to return to China. For respondents living overseas, the willingness to return is based on a yes or no question posed in Survey 1: "are you willing to work or start businesses in China?" Those who respond in the affirmative are coded as one alongside the actual returnees, whereas those who indicate they are not willing to return are given a value of zero. The willingness to return analysis uses bivariate probit and SNP estimation. Some control variables in the willingness to return analysis differ from those included in the career and income satisfaction regressions. These will be described in the following section.

Results and discussion

Career and income satisfaction

The focal point of the empirical analysis includes three empirical models using two satisfaction measures as the dependent variable: career satisfaction and income satisfaction.

OLS, bivariate probit, and semi-nonparametric (SNP) models are estimated separately for each dependent variable. Table 3 provides descriptive statistics for the variables included in these models.

[Table 3 here]

Our dependent variables are career satisfaction5, career satisfaction1, income satisfaction5, and income satisfaction1. As mentioned previously, we utilize ordinal and binary versions of both economic satisfaction variables. The variables ending in '5' denote those on a five-point scale from very dissatisfied to very satisfied; variables ending in '1' denote the recoded variables on a binary not satisfied or satisfied scale. For the OLS models, the five-point scale data is used; for bivariate probit and SNP estimation models, the binary satisfaction variables are used.

Measured on a five-point scale, respondents express slightly better than neutral satisfaction with their career (mean = 3.46) and income (3.15), on average. However, after recoding with neutral or lower responses included in the 'not satisfied' category, the average expected level of career satisfaction (mean = 0.511) is even closer to a coin flip between the not satisfied and satisfied categories. Meanwhile, when income satisfaction is coded on a binary basis, respondents are more likely to report that they are not satisfied (neutral, dissatisfied or very dissatisfied) than satisfied (including responses of satisfied or very satisfied; mean = 0.359).

Now, we turn our attention to the control variables employed in the income and career satisfaction regression models. The key "talent policy" variable is based on the survey prompt "the main reasons for settling and developing your career in this destination above are." Talent attraction policy is one option for those responding to the question. It is coded on a five-point scale from strongly disagree to strongly agree. The variable is a subjective measure that does not differentiate based on the specific talent policies that were important for a given respondent. The survey took this approach to allow for generalizable results between the overseas and returnee samples. Given the large number of talent policies in China, a more general approach also allows for respondents' general reflection of talent policy's importance without burdening them with a large list of policies.

The "economic prosperity" and "marriage" variables measure the importance that respondents attached to economic prosperity in China and looking for a partner for marriage, respectively, when they made their decision to return to China. These are also measured on a five-point scale. Those who ranked economic prosperity highly figure to be optimistic about the Chinese economy and the benefits it may bring them. The marriage variable is included due to cultural and lifestyle reasons, and because relationships may be an important motivator in the labor market. Since the importance of finding a marriage partner may differ for males and females, an interaction term between being female and the marriage variable is included ("female*marriage").

"Social security" measures respondents' level of agreement (1 – strongly disagree to 5 – strongly agree) that the social security system is a concern for them when living and working in China. This variable is of interest in part because of the Hukou system in China, which may restrict access to social security for some returnees. "Chinese culture" and "Chinese food" are coded from one to five in terms of their importance when making the decision to return to China. They are intended to capture sociocultural factors that may affect the return decision.

Next, as family members can influence the decision to return, we include several variables related to children. "Children's education" captures whether the quality of education for one's child in China is a concern on a five-point scale from strongly disagree to strongly agree. Despite being on a five-point scale, no respondents strongly agreed with the notion that education would be a concern, so the maximum value observed for the variable is four, corresponding with a response of 'agree.' The variable's average value is roughly equivalent to a 'disagree' answer (mean = 1.93). On the other hand, the 'minor' variable equals one if the respondent has a child under the age of 18 and zero otherwise while 'no minor' is coded inversely. 34.8 percent of respondents have a young child.

The next variables in our models capture other personal characteristics of survey respondents. "Male" is simply a binary variable coded 0 if a respondent's sex is female and 1 if their sex is male; "female" is coded inversely. Females make up most of the sample (69.6 percent). The "age" variable captures the respondent's age at the time of the survey. The average

respondent was 32 years old, and most were close to this age based on the standard deviation. To measure respondents' professions, the survey included numerous occupational categories. For simplicity, we have coded two occupational groupings that are used in our regressions: "academic/researcher" and "other occupation." At 31.5 percent of the sample, the academic category is the single largest occupational group. Furthermore, it is the occupational grouping most often focused on by Chinese talent policies, so we believe it deserves special attention. Relatedly, respondents were highly educated. "Education level" indicates the highest level of education a respondent has attained, equaling one for a postgraduate degree and zero otherwise. 89.1 percent of respondents have a master's degree or higher, demonstrating returnees' strong human capital. Our final control variables determine the location where returnees now live in China. "Large city" includes the four largest cities in China: Beijing, Shanghai, Guangzhou, and Shenzhen. "Big northern city" features other cities in the North of China outside of those in the top four, whereas "big southern city" features other big cities in the country's southern region. Finally, "other city" is a residual category. As expected, respondents are most likely to live in a "large city" (44.6 percent of the sample) followed by a "big southern city" (38.0 percent), as the economy is most prosperous in those cities.

As for the regression results, Table 4 displays the results for the models with career satisfaction as the dependent variable. The first number shown next to each variable is the regression coefficient for the variable, accompanied by one asterisk or more to denote the level of statistical significance, if any (*** $p<0.01$, ** $p<0.05$, * $p<0.1$). Standard errors for

each variable are below each coefficient, in parentheses. Constant terms and cut points are omitted from the table for readability.

[Table 4 here]

The talent policy variable is statistically significant at the $p<0.05$ or $p<0.01$ level in all models in Table 4 with a sizably positive coefficient, indicating that those who are more strongly motivated to return to China by talent policy are more likely to be satisfied with their career after returning. This key finding aligns with our expectation that talent policies would be a crucial reason for returning to China. While the economic prosperity variable has a positive magnitude in the OLS model at the 0.05 significance level and is also significant with a positive magnitude in the SNP model, it loses significance in the bivariate model despite maintaining a strongly positive coefficient. Therefore, as OLS and SNP models can address the issue of estimating with small sample issue more effectively, we believe that a correlation between the perception of an economically prosperous China and career satisfaction is highly likely.

For the micro-level return motivation variables in Table 4, the desire to seek a marriage partner is the most significant variable by far, reaching the 0.01 level in all three models with a strongly positive coefficient. When interacting the marriage and female variables, the coefficient is negative, suggesting that seeking a marriage partner is less of a concern for females. The interaction term is statistically significant at the 0.05 level in the bivariate

model, and insignificant in the OLS and SNP models. Overall, we can conclude that those seeking a marriage partner experience greater career satisfaction, in line with expectations that marriage is an important career motivator, especially for males.

The other micro-level return motivation variables in Table 4 rarely reach statistical significance in our models, if at all. The Chinese food variable surpasses the 0.1 significance level threshold in the OLS model with a negative sign, but it is positively signed and statistically insignificant in the other two models. “Social security,” “Chinese culture,” and “children’s education” do not reach the 0.1 significance level threshold in any of the three models.

The variables accounting for personal characteristics in Table 4 are mostly not statistically significant, with exceptions. The one personal characteristic variable that is consistently significant across models is that for being an academic/researcher. Compared to the “other occupation” reference category, the research occupational category is negatively signed and statistically significant at the 0.1 level or better in each of the three models. This is a somewhat surprising result considering that most talent policies focus on academics. Then again, there have been challenges noted for academics who return to work in Chinese research institutions (Li et al. 2018; Zhang et al. 2022). Additionally, not all researchers in the sample benefitted from talent policies, and they tend to be earlier in their career, which comes with lower salaries and less academic freedom compared with later career researchers. The drastically different research environment in China compared to countries such as the United

States and Canada may help further explain the lower career satisfaction of returnee researchers.

Though positively signed in all three models, the education level variable reaches statistical significance in two of the three models. Compared to the reference category, “other city” the three other location variables are not consistently statistically significant. The “large city” variable is significant in the bivariate probit model. Both relationships are significant at the 0.1 level and have negative coefficients, suggesting there might be some issues of talent oversupply and skill mismatch in those largest cities to which returnees are more likely to move to. Variables for having a young child, gender, and age are not significant in any model. Thus, we cannot definitively conclude that any of the personal characteristics discussed in this paragraph correlate with career satisfaction for Chinese returnees. It is possible that education level and location may influence career satisfaction, but our results do not show a consistent enough trend to make a judgment.

In addition to the analysis of career satisfaction, we analyzed factors correlating with the related concept of income satisfaction. While these may seem quite similar, many highly-skilled workers or business owners may not yet earn much while finding their career satisfying due to intellectual satisfaction or other non-pecuniary benefits to the work they pursue. This is particularly relevant for many returnee talent policies since they often target early career researchers. The influence of talent policy on the decision to return is expected to

have a great effect on income satisfaction, as many talent policy programs aim to boost remuneration for relatively young, highly-skilled workers.

The results of our three income satisfaction analysis models are presented in Table 5.

[Table 5 here]

Talent policy is statistically significant at the 0.01 level in all income satisfaction models, and the correlation with income satisfaction is positive and large. This is as expected since talent policies typically compensate returnees very well. However, the effect of perceived economic prosperity in the return decision is not significant as it relates to income satisfaction in two of the three models. While the variable reaches significance in the SNP model with a negative sign, the direction of the correlation varies depending on the model and results for the variable are not consistent across specifications. We therefore conclude that there is insufficient evidence that the perception of economic prosperity in China relates to the income satisfaction of returnees.

The motivation of finding a partner for marriage is also statistically significant across the three income satisfaction models in Table 5. As expected, there is a positive correlation between these two variables since workers will try to earn a high income to entice potential partners. The marriage*female interaction term displays a negative correlation across specifications, although it never reaches the minimum significance threshold. It is probable

that males are more likely to strive for higher incomes to impress potential partners, but we cannot say for sure due to the lack of significance.

The variable for concern regarding the social security system in China has a usually positive coefficient in all the Table 5 models. However, it is not statistically significant in any model.

“Chinese food” is statistically significant and positively signed in the bivariate probit and SNP models in Table 5, but it is not significant in the OLS model. A positive relationship with income satisfaction may proxy for the importance of ‘Guanxi’ – social networks – in China. On the other hand, the “Chinese culture” variable is negatively signed and does not reach significance in any of the income satisfaction models. We interpret these results with caution because of the lack of significance. However, the negative correlation may be explained in part by individuals making the tradeoff of lower income to return home to the culture of China.

The next variables, regarding concern about the education of one’s children in China and the variable indicating whether a respondent has a minor age child, are both statistically insignificant. The “children’s education” variable is negatively associated with income satisfaction in all the Table 5 models while the “minor” variable is positively signed. Being a female is not significantly associated with income satisfaction, and the variability of results depending on model specification leads us to interpret the results with caution. Likewise, the age of respondents is not significant in any of the income satisfaction models. This variable is

negatively signed, implying that older returnees are less satisfied with their income. As for the location variables, the "large city" and "big northern city" variables are statistically significant and negatively signed in the SNP model, relative to the "other city" reference category, possibly due to the high cost of living relative to income in such big cities. However, they do not surpass the 0.1 significance level threshold in the other models.

The final variables to cover in Table 5 are respondents' profession ("academic/researcher") and education level. Not surprisingly, both are significant at the 0.01 or 0.05 level in all the income satisfaction models. Relative to other professions, academics/researchers are consistently less satisfied with their income, suggesting that compensation remains a challenging area for such highly-skilled professional returnees, while those with a higher level of education are more satisfied, consistent with the human capital theory.

Turning now to a more detailed overview of the results from Tables 4 and 5, we will begin with talent policy. Talent policy as a motivating factor to return to China is strongly significant and positively correlated with both career satisfaction and income satisfaction. These results accord with our 3A needs structure and 3R competitive system theoretical framework. Talent policies are often highly remunerative for highly-skilled talents who choose to return to China, and often put them on a path to great career success. So, the robust, positive correlations with both career and income satisfaction are no surprise.

The notion of economic prosperity in China as a motivation to return has a strong positive coefficient in the models with career satisfaction as dependent variable, although it is not always significant. Meanwhile, it is not significant in two of the three income satisfaction models, and its sign is sometimes negative, other times positive. It is probable that those who want to return to China because they believe it to be economically prosperous are doing so based on perceived opportunity, whereas those who do not view China as economically prosperous are more likely to return out of necessity. Naturally, those motivated by economic opportunity are likely to be more satisfied with their career than those forced to return despite a negative disposition toward the state of the Chinese economy. Another factor at play is that returnees who are satisfied with their career trajectory post-return are likely to have a more positive view of the Chinese economy than those who are dissatisfied. Thus, the link between respondents' view of the Chinese economy and their career satisfaction as returnees is likely endogenous, to some extent, and may color respondents' views of the importance of economic prosperity as a return motivator. Nevertheless, the link between the perception of economic prosperity and greater career satisfaction is somewhat tenuous since the relationship is significant in two of the three models.

Interestingly, the perception of an economically prosperous China as a return motivator does not seem to significantly correlate with income satisfaction. This indicates that positive perceptions of China's economy are probably not confined to those in the upper ends of the income distribution, at least among returnees. Returnees are usually closer to the upper tail of the income distribution than they are to the lower tail. Some of them are perhaps hoping to

benefit from a growing China in the future despite lacking satisfaction with their income at present. Furthermore, the lack of significance in the prosperity and income satisfaction relationship casts doubt on the notion that returnees solely determine their view of the Chinese economy according to their current economic situation. This highly educated cohort may be able to 'see the forest for the trees,' realizing that their current income is not necessarily indicative of the state of the Chinese economy at large.

Our next independent variable, the motivation of seeking a marriage partner, is statistically significant in all six models and has a consistent positive relationship with both career and income satisfaction. This is as expected. Being married, or striving to settle down with a partner, commonly has a positive relationship with career outcomes, particularly for males. Although the marriage*female interaction term is only significant in one of the three career satisfaction models and none of the income satisfaction models, it is always negatively signed. This provides slight evidence for the notion that males are more likely to strive for career success as a means of attracting a marriage partner.

Neither concerns about the Chinese social security system nor the draw of traditional Chinese culture are regularly statistically significant across specifications. The social security variable is usually positively related to income and career satisfaction but never reaches significance. Concerns about Chinese social security access are therefore unlikely to have an impact on the labor market satisfaction of Chinese returnees, possibly indicating that Hukou has a limited career impact on our sample of returnees. Hukou can be a substantial barrier to re-entry for

some overseas Chinese (Ho 2011), although it is more likely to be a barrier for those who are more integrated into an overseas country. In our sample, just 32.7 percent of returnees were citizens in their previous country of residence before returning to China. Those with more concerns exhibit greater career and income satisfaction, on average, which could be related to those with more concerns about social security requiring better career and income circumstances to justify returning to China. Our *a priori* expectation for Chinese culture's association with career and income satisfaction was that some returnees may trade labor market success for the feeling of being at home. In line with expectations, the culture variable is negatively signed in every model. However, it is not significant in any of the models. Ultimately, the role of culture as a motivator to return appears to have little relation to labor market satisfaction.

We conjecture that the importance of Chinese food in a return decision may be a proxy for a returnee's desire to socialize once they return to their home country. The results for this variable are sometimes statistically significant, but they vary greatly between model specifications. We therefore cannot make any conclusions regarding the variable. On one hand, strong relationships can help in the labor market; on the other, excessive socializing may distract a returnee from work. The results do not provide clarity regarding which effect dominates, if there is a pronounced effect at all.

Our two variables relating to respondents' children: concerns about children's education in China and whether the respondent has a minor aged child, exhibit different relationships with

career and income satisfaction. “Children’s education” is negatively signed in all but one model; “minor” is positively signed in all but one model. Neither variable is statistically significant in any model. Thus, they are likely not substantial factors associated with career or income satisfaction. The usually positive sign on “minor” is not a surprise, as those with young children have an incentive to work hard to provide for them.

The other personal characteristic variables, age and gender, are not statistically significant across any model specifications. Regardless of gender and age, returnees almost always have high human capital, which could explain the lack of significance of these variables. However, the variables for profession and education level are usually significant.

Academics/researchers consistently display lower income and career satisfaction than those in other professions. Since talent policy is controlled for, these results probably relate to the fact that most academics in the sample are early in their career and therefore have not yet reached a high salary in many cases, especially for those who did not return because of talent policy. The different university system in China compared with many Western countries could also play a role. Education level is positively associated with career and income satisfaction in all models. The variable is statistically significant in all income satisfaction models but is only significant in two of the career satisfaction models. The results for income satisfaction especially are consistent with basic human capital theory. Those with more education will typically earn more, and those who earn more will typically be more satisfied with their income.

Finally, the location where returnees reside does not seem to be meaningfully related to their satisfaction with their career and income, although the coefficients all have a negative sign and are marginally significant for the largest cities and big northern cities relative to the remaining smaller cities (reference group), suggesting high cost of living as a reason. The literature on regional talent policy differences is undeveloped, so this is an interesting area to study going forward.

Willingness to return

To supplement our main analysis, we also conducted regressions to assess the factors that correlate with the willingness to return to China. As mentioned previously, this section of our analysis incorporates a merged dataset of both of our surveys; thus, it includes data on both returnees and overseas Chinese. Table 6 displays the descriptive statistics of this merged dataset.

[Table 6 here]

The "willingness to return" variable equals one if the respondent is a returnee or a foreign resident who is willing to return to China and equals zero for respondents overseas who are not willing to return to China. This is the dependent variable in the regression models presented in this subsection. As the merged dataset contains many returnees, there is a high 'willingness to return' (mean = 0.84).

The willingness to return regressions include some different variables from the career and income satisfaction models presented previously. The differences relate to the merging of the returnee and overseas datasets and the fact that we are interested in barriers to returning more so than return motivators for those unwilling to return.

These newly introduced variables are all coded based on responses to the survey prompt: "your main concerns about living and working in China are:" Answers could be given on a five-point scale of strongly disagree (response = 1) to strongly agree (response = 5). The middle response equal to three implies a neutral level of concern. The concerns measured by "working conditions," "talent utilization," "spousal employment," "food safety," "trade relations," and "rule of law" ought to be self-explanatory based on variable names. "Inspection" relates to the level of concern surrounding frequent performance assessment and reporting. "Career contacts" measures concern about a lack of social network for career development. "Market" measures concern about China's market capacity and potential. Concern for "children's education" and "social security" were previously included in the satisfaction regressions and explained in the corresponding subsection.

Overall, the average response for each potential item of concern in Table 6 rounds to equal a response of 'disagree' (value = 2). Therefore, there was minimal concern among respondents about living in China. With a mean response value of 2.36, spousal employment in China is the greatest concern for survey respondents. It is important to note, however, that this is a

dataset including those who have returned. Excluding actual returnees, there were greater levels of average concern.

The other variables in Table 6 were included already in the career and income satisfaction regression models. As the dataset used for the willingness to return regressions has a substantial amount of overlap, their average values and distributions are quite like those presented earlier, in Table 3.

The regressions with willingness to return as the dependent variable are displayed in Table 7. Only regular probit and semi-nonparametric (SNP) models are used.

[Table 7 here]

Beginning the discussion of the results with the concern variables that are statistically significant in both models, we have “spousal employment,” “trade relations,” and “rule of law.” Each of these variables is statistically significant at the 0.05 level with a negative correlation with willingness to return in both the probit and SNP models. Concern about social security in China is significant at the 0.1 level in the probit model but is not significant in the SNP model. It is positively signed in both models. The other variables measuring level of concern do not reach significance in either model.

We can therefore conclude that those harboring concern regarding spousal employment, trade relations, and the rule of law in China are less likely to be willing to return to China. Concern about factors such as working conditions, career contacts, and food safety does not seem to impact willingness to return. Interestingly, two of the three most relevant concerns are related to macro-conditions in China (rule of law) and internationally (trade relations).

As for the variables controlling for personal characteristics, age and education level are statistically significant in both models. Older respondents are less likely to be willing to return to China, which is as expected. Those who are more educated are more likely to return. We do not include a talent policy variable in these regressions as those questions were not asked to those who remain overseas, so the fact that talent policy usually targets the highly educated could be a factor in the education level results. Judging just by coefficients, females are less likely than males to be willing to return. However, the variable is weakly significant in the SNP model, and it is not significant in the probit model. The positive interaction term between female and marriage suggests that females who attach more importance to "looking for a marriage partner" are more likely to return. There is no significant difference in willingness to return for academics/researchers compared to those in other fields in either model, though the "academic/researcher" variable is negatively signed in both.

Summary and conclusion

After the global outbreak of the pandemic, both the incidence and severity of discriminatory acts against Asian and especially Chinese individuals in the United States and Canada have rapidly increased. Compounding these difficulties, the United States has implemented a series of suppressive actions against Chinese scholars in recent years, such as the “China Initiative,” exacerbating the risks to Chinese scholars in the United States With this backdrop, China has more opportunities to attract these high-level talents to return to the country and retain them for national development, and the data backs up the theory of increased return migration in recent years. Simultaneously, China has implemented numerous talent policies aimed at enticing Chinese living overseas to return to the country.

Our study offers insights into the drivers of successful economic integration for overseas Chinese who return home. Leveraging survey data on a sample of Chinese ‘returnees’, we use ordinary least squares, probit and semi-nonparametric models to assess the factors that correlate with self-reported career satisfaction and income satisfaction amongst a diverse sample of returnees who currently live and work in China. Then, we analyze the correlates of willingness to return to China using a merged dataset of returnees and overseas Chinese.

Returnees motivated to come back to China by talent policies are substantially more likely to be satisfied with both their career and income. The desire to find a marriage partner is the other variable which is positively associated with both career and income satisfaction and is statistically significant regardless of model specification. Academics/researchers are less likely to be satisfied with their career and income compared with those in other professions,

suggesting that retaining (if not attracting) such highly-skilled professional returnees remains a major challenge for China. However, this finding can also be explained by the fact that younger academics in our sample typically do not have the same level of income and academic freedom than their more experienced counterparts enjoy. Not surprisingly, those with higher levels of education are generally more satisfied with their income.

For our analysis of the willingness to return, those who are concerned about spousal employment in China, China's trade relations, and the rule of law in China are significantly less likely to be willing to return. Older respondents are less willing to return, whereas those who have higher educational attainment are more willing to return.

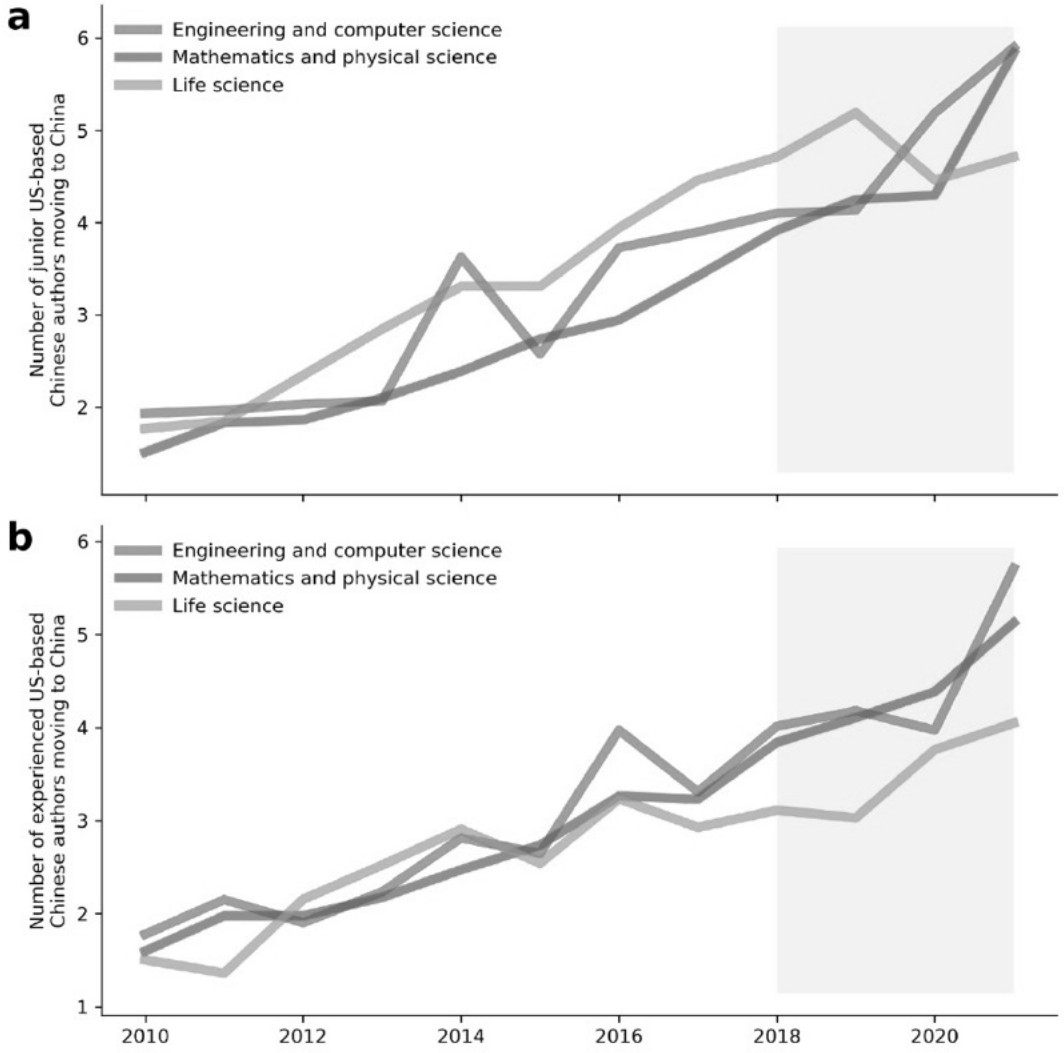
Our results suggest that Chinese talent policy is working in terms of its effect on the career and income satisfaction of Chinese returnee professionals. Those who consider talent policy to be an important motivator to return are much more likely to be satisfied with their labor market outcomes including income levels and career progression. Returnees who are seeking a marriage partner in their home country are also more likely to be satisfied with their career and income upon returning, probably due in part to their motivation to impress potential partners.

Whether or not a returnee was motivated to come back to China due to talent policy seems to be the most reliable predictor of career and income satisfaction based on our analysis. Personal factors such as the hope of finding a marriage partner are also important. On the

downside, overseas Chinese are less willing to return to China if they are concerned about conditions in the country relating to spousal employment, trade relations and the rule of law. The finding that returnees motivated by talent policy are satisfied with their career and economic position in China should be a welcome sign for China as it intensifies its efforts in the competition for global talent.

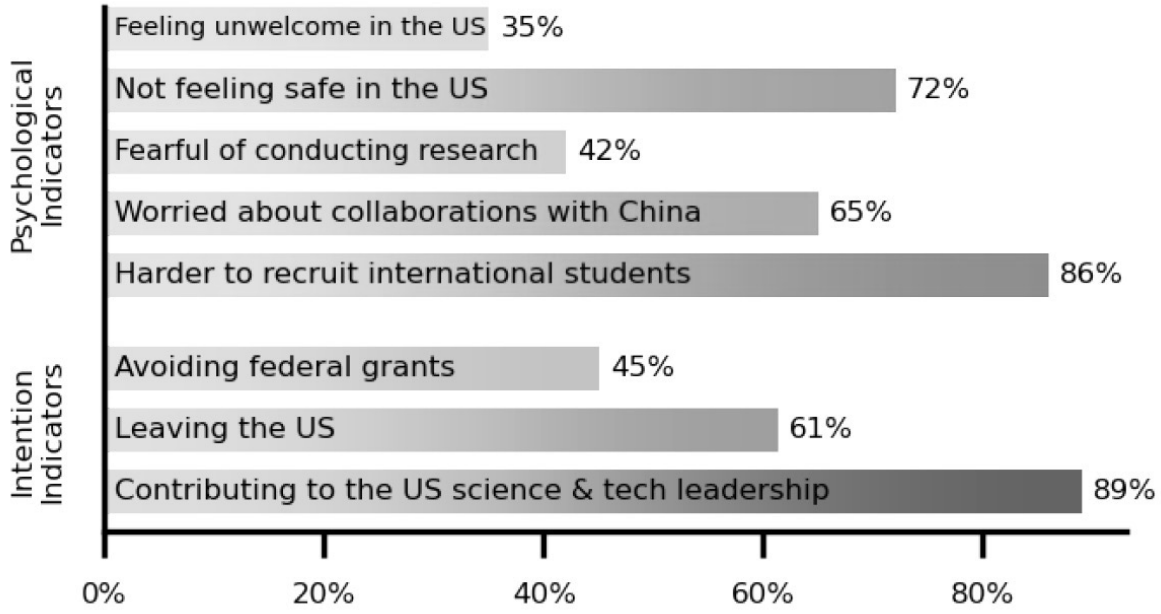
Tables and Figures

Figure 1. Normalized number of (a) junior and (b) experienced Chinese scientists leaving the US each year for China from 2010 to 2021



Source: *Xie et al. 2023.*

Figure 2. Perceptions and intentions of Chinese-origin scholars residing in the United States



Source: *Xie et al. 2023.*

Table 1. Assessment of working and social conditions in China for Chinese overseas. Q: "Please evaluate the following main purposes and reasons for being willing to work or start a business in China (Very unimportant 1-5 very important, N=92)"

Reason for Returning	Average Importance	3A/3R Concordance	Reason for Returning	Average Importance	3A/3R Concordance
Potential for career development	3.25	Achievement	Stable political environment	3.16	Recruitment
Seeking investment opportunities or finding business partners	2.37	Affluence	Low crime rate	3.34	Recruitment
Family reunion	3.27	Attachment	Prosperous economy	3.37	Recruitment
Looking for a partner for marriage	2.18	Attachment	Favorable talent policy	2.91	Recruitment
Looking for a retirement place or returning to homeland	2.52	Attachment	Personal income	2.78	Remuneration
Chinese traditional culture	2.96	Attachment	Extensive social network for employment and entrepreneurship	2.78	Retention
Chinese food	3.19	Attachment	Gaining respect by working in China	2.73	Retention
Convenient lifestyle	3.31	Attachment			

Table 2. Assessment of working and social conditions in China for Chinese returnees. Q: "Please evaluate the following main purposes and reasons for working or starting a business in China (Strongly disagree 1- 5 Strongly agree. N=110)"

Reason for Returning	Average Importance	3A/3R Concordance	Reason for Returning	Average Importance	3A/3R Concordance
Potential for career development	4.54	Achievement	Stable political environment	4.39	Recruitment
Seeking investment opportunities or finding business partners	4.08	Affluence	Low crime rate	4.50	Recruitment
Family reunion	4.39	Attachment	Prosperous economy	4.45	Recruitment
Looking for a partner for marriage	3.94	Attachment	Favorable talent policy	4.28	Recruitment
Looking for a retirement place or returning to homeland	3.91	Attachment	Personal income	4.33	Remuneration
Chinese traditional culture	4.01	Attachment	Extensive social network for employment and entrepreneurship	4.25	Retention
Chinese food	4.09	Attachment	Gaining respect by working in China	4.17	Retention
Convenient lifestyle	4.33	Attachment			

Table 3. Descriptive statistics for the career and income satisfaction regression models, Chinese returnees only

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Career satisfaction5	92	3.457	0.790	1	5
Career satisfaction1	92	0.511	0.503	0	1
Income satisfaction5	92	3.152	0.876	1	5
Income satisfaction1	92	0.359	0.482	0	1
Talent policy	92	3.402	1.017	1	5
Economic prosperity	92	4.435	0.746	1	5
Age	92	32.28	6.809	21	58
Education level	92	0.891	0.313	0	1
Marriage	92	3.924	1.040	1	5
Female*marriage	92	2.848	2.059	0	5
Children's education	92	1.935	0.912	1	4
Social security	92	1.891	0.895	1	4
Chinese culture	92	4.011	1.053	1	5
Chinese food	92	4.141	1.075	1	5
Male	92	0.304	0.463	0	1
Female	92	0.696	0.463	0	1
Academic/researcher	92	0.315	0.467	0	1
Other profession	92	0.685	0.467	0	1
Minor	92	0.348	0.479	0	1
No minor	92	0.652	0.479	0	1
Large city	92	0.446	0.500	0	1
Big northern city	92	0.054	0.228	0	1
Big southern city	92	0.380	0.488	0	1
Other cities	92	0.120	0.326	0	1

Table 4. Correlates of Chinese returnees' career satisfaction

MODEL:	OLS	Bivariate Probit	Semi-nonparametric
VARIABLE	career satisfaction5	career satisfaction1	career satisfaction1
Talent policy	0.258**	0.400**	0.890***
	(0.105)	(0.187)	(0.241)
Economic prosperity	0.296**	0.455	0.550*
	(0.140)	(0.295)	(0.284)
Age	0.0004	0.012	-0.026
	(0.012)	(0.025)	(0.034)
Education level	0.365	1.003**	2.543***
	(0.313)	(0.507)	(0.848)
Female	0.502	1.696	-0.235
	(0.564)	(1.093)	(1.504)
Marriage	0.399***	0.769***	0.945***
	(0.102)	(0.242)	(0.352)
Female*marriage	-0.198	-0.594**	-0.451
	(0.149)	(0.291)	(0.399)
Children's education	-0.032	-0.063	0.022
	(0.103)	(0.244)	(0.340)
Social security	0.148	0.307	0.136
	(0.106)	(0.257)	(0.365)
Chinese culture	-0.003	-0.149	-0.252
	(0.101)	(0.234)	(0.355)
Chinese food	-0.269*	0.088	0.197
	(0.144)	(0.255)	(0.380)
Academic/researcher	-0.316*	-0.590*	-2.579***
	(0.180)	(0.356)	(0.604)
Minor	0.066	0.126	-0.059
	(0.186)	(0.393)	(0.484)
Large city	-0.217	-0.973*	-1.866**
	(0.350)	(0.565)	(0.791)
Big northern city	-0.036	-0.709	-1.131
	(0.531)	(0.824)	(1.373)
Big southern city	-0.223	-0.604	-0.826
	(0.351)	(0.557)	(0.697)
Observations	92	92	92

Note: *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 5. Correlates of Chinese returnees' income satisfaction

MODELS	OLS	Bivariate Probit	Semi-nonparametric
VARIABLES	income satisfaction5	income satisfaction1	income satisfaction1
Talent policy	0.397***	0.892***	1.971***
	(0.098)	(0.218)	(0.469)
Economic prosperity	0.140	-0.375	-2.495***
	(0.145)	(0.365)	(0.788)
Age	-0.015	-0.021	-0.084
	(0.014)	(0.028)	(0.052)
Education	0.716**	2.055***	4.975***
	(0.296)	(0.599)	(1.141)
Female	0.072	1.693	-1.624
	(0.584)	(1.567)	(3.177)
Marriage	0.259**	0.704**	1.001*
	(0.121)	(0.279)	(0.576)
Female*marriage	-0.055	-0.570	-0.144
	(0.158)	(0.383)	(0.715)
Children's education	-0.052	-0.279	-0.224
	(0.129)	(0.273)	(0.521)
Social security	0.166	0.229	-0.248
	(0.107)	(0.246)	(0.499)
Chinese culture	-0.004	-0.089	-0.0038
	(0.131)	(0.230)	(0.512)
Chinese food	-0.076	0.610**	2.332***
	(0.139)	(0.309)	(0.758)
Academic/researcher	-0.326*	-1.425***	-4.390***
	(0.188)	(0.436)	(1.183)
Minor	0.134	0.474	1.192
	(0.201)	(0.432)	(0.809)
Large city	-0.258	-0.114	-2.104**
	(0.311)	(0.678)	(1.057)
Big northern city	-0.059	-0.248	-2.956*
	(0.567)	(1.031)	(1.547)
Big southern city	0.010	0.175	-1.399
	(0.309)	(0.656)	(1.112)
Observations	92	92	92

Note: *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Table 6. Descriptive statistics for the willingness to return regression models, merged Chinese returnees and overseas Chinese data

Variable	Obs.	Mean	Std. Dev.	Min	Max
Willingness to return	131	0.840	0.368	0	1
Working conditions	131	2.000	0.886	1	5
Talent utilization	131	1.885	0.856	1	5
Inspection	131	1.977	0.964	1	5
Career contacts	131	1.962	0.854	1	5
Children's education	131	2.069	0.970	1	5
Spousal employment	131	2.359	1.001	1	5
Social security	131	1.992	0.941	1	5
Food safety	131	1.985	0.984	1	5
Trade relations	131	2.137	0.998	1	5
Rule of law	131	2.031	0.952	1	5
Market	131	2.053	0.914	1	5
Age	131	34.336	8.863	20	65
Male	131	0.359	0.481	0	1
Female	131	0.641	0.481	0	1
Marriage	131	3.038	2.865	1	5
Education level	131	0.847	0.361	0	1
Female*marriage	131	1.733	1.889	0	5
Academic/researcher	131	0.374	0.486	0	1
Other professions	131	0.626	0.486	0	1

Table 7. Correlates of willingness to return, merged returnees and overseas Chinese data

MODELS	Probit	Semi-nonparametric
VARIABLES	willingness to return	willingness to return
Working conditions	-0.068	-0.046
	(0.288)	(0.278)
Talent utilization	0.115	0.070
	(0.350)	(0.283)
Inspection	0.079	0.353
	(0.232)	(0.264)
Career contacts	0.486	0.428
	(0.325)	(0.311)
Spousal employment	-0.666**	-0.657**
	(0.307)	(0.304)
Age	-0.066***	-0.051***
	(0.021)	(0.012)
Education level	1.135**	1.339*
	(0.473)	(0.731)
Female	-0.827	-0.987*
	(0.661)	(0.599)
Female*marriage	0.325	0.458**
	(0.212)	(0.228)
Children's education	0.030	0.085
	(0.252)	(0.270)
Social security	0.455*	0.218
	(0.276)	(0.278)
Food safety	-0.070	-0.106
	(0.178)	(0.209)
Trade relations	-0.541**	-0.750**
	(0.226)	(0.342)
Rule of law	-0.763**	-0.553**
	(0.322)	(0.248)
Market	0.099	-0.023
	(0.267)	(0.226)
Academic/researcher	-0.586	-0.465
	(0.414)	(0.500)
Observations	131	131

Note: *Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

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