

# Age Dynamics of the Careers of Qing Officials, 1830-1911

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*Preliminary. Please Do Not Cite or Circulate Under Any Circumstances.*

9 November 2023 version

## Abstract

This study examines the age dynamics of appointment, service, and exit for Qing civil officials from 1830 to the end of the Qing in 1911. At any given time during the 19th century, there were approximately 12,500 civil officials who held regular appointments. Despite the disproportionate importance of this bureaucratic elite – by 1911 they administered a population of 400,000,000 – there are only a few previous studies of their age dynamics, all focused on specific subgroups and relying on small samples. More generally, there are few comparable studies of the age dynamics of the employees of any large, elite organization before the 20th century. Given the prevalence of mandatory retirement ages for public employees including civil servants and educators in contemporary East Asia, we pay particular attention to the officials who served at advanced ages. While historical texts from the Han to the Qing mention 60 or more commonly 70 as a normative age for retirement of officials, emperors from Yongzheng onwards focused on officials' capacity for service and discouraged reliance on age alone for making personnel decisions. Our analysis makes use of an extract from the China Government Employee Datasets-Qing (CGED-Q) consisting of 431,879 records of 61,944 officials for whom we not only have career records, but also years of birth from records of *jinshi*, *juren*, and *gongsheng* degree holders in the CGED-Q ER (Examination Records). According to our analysis, ages at first appointment, service, and exit were all highly dispersed. *Juren* officials were older than *jinshi* because they started their careers later. Even though many contemporaneous sources suggested that officials typically retired at age 70, we find that many served well past that age. Examining patterns by bureaucratic rank and trends over time, we show that the ages of the highest officials (1-4 *pin*) rose rapidly after 1880. Relying on empirical measures of death rates from 19th century Chinese populations, we also provide life table estimates of the proportions of officials who died in office, or whose careers may have ended through mandatory bereavement leave. These estimates suggest that nearly one-half of officials may have ended their careers by death or bereavement.

## Introduction

This paper examines the age dynamics of appointment and exit from service for Qing civil officials from 1830 to 1912, as well as their age composition. At any given time, there were approximately 12,500 officials who held formal appointments in the Qing civil service. This group was small compared to the population they administered: by the end of the 19<sup>th</sup> century, the population of the Qing was approximately 450,000,000 people. Accordingly, they constituted an extraordinarily important group, with power and influence vastly disproportionate to their size.

The Qing civil service and the officials who composed it have been objects of scholarly interest since at least the 19<sup>th</sup> century. Previous studies of the Qing civil service have mostly been case studies of specific officials or groups of officials, policies, events, or government bodies. These have illuminated regulations and practices regarding the appointment, promotion, and termination of officials, but in the absence of microdata on a large sample of officials, it has not been possible to study the age distribution and the age patterns of appointment and exit, let alone other compositional features of officialdom.

We provide the first systematic descriptive results on the age dynamics of a nearly complete sample of regular civil officials who held examination degrees, including the age at attainment of exam degree, ages at first appointment and exit from service, age-specific rates of exit from service, and the overall age composition of different types of serving officials. We focus on civil officials who held the *juren*, *jinshi*, and *gongsheng* examination degrees. At present, these exam degree holders are the only categories of officials for whom there is systematic information about age available. *Juren* degrees were awarded to passers of the provincial exam (*xiangshi*). *Juren* could sit for the Metropolitan Exam (*huishi*) in the capital. Even though according to Chen et al. (2020) exam degree holders like *juren* and *jinshi* were just one part of the civil service, serving alongside large numbers of holders of purchased degrees as well as Bannermen, they were nevertheless important. Most of the officials who served in the capital who were not Bannermen were holders of the *jinshi* degree. *Juren* accounted for many prefects and county magistrates. *Gongsheng* were a lower status exam degree holder who have received less attention (Chen and Campbell 2023).

We pay special attention to age dynamics at later ages because the age of retirement in many East Asian societies is around 60, especially for public sector workers. We can therefore examine whether Qing officials were still working past the retirement ages of their contemporary counterparts.<sup>1</sup> We also examine age-specific rates of exit from service for empirical evidence on whether there was a normative or statutory retirement age. If there was, it should be apparent as a very high exit rate at a specific age. As discussed below, while some historical sources contain claims about the relationship between age and fitness for service, regulations and policy during the Qing emphasize assessment of the qualifications and performance of officials, not their age, and there was no evidence in historical sources of a mandatory retirement age like the ones observed in contemporary societies. We also apply life table

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<sup>1</sup> For example, the retirement age for males in mainland China is still 60. In Hong Kong, civil servants appointed before 2015 and faculty at some of the public universities retire at age 60 or in at least one case 65. Until 2018, the retirement age for public sector employees in Taiwan was 61. In Japan, the retirement age for public sector workers was 60 until recently, though that is being raised. In South Korea, the retirement age is 60, though there is discussion of raising it.

techniques to the observed age-specific exit rates to provide estimates of the shares of officials who died in office, or ended their careers because they went on bereavement leave and did not return.

We make use of the China Government Employee Database-Qing (CGED-Q), a family of datasets constructed by the Lee-Campbell Group. The CGED-Q *Jinshenlu* (JSL) provides longitudinal, individual-level data on civil officials who held formal appointments between 1760 and 1911 (Chen et al. 2020) transcribed from surviving rosters of civil officials called *Jinshenlu* that were produced every three months. From 1830 onwards, surviving editions are available at least annually, and more often quarterly. For this period, the CGED-Q JSL includes 3,843,644 records of civil offices held by 269,137 civil officials. We obtain ages for officials who held examination degrees from the CGED-Q Examination Records (ER), which provides information of varying levels of detail for more than 100,000 holders of *jinshi*, *juren*, and *gongsheng* examination degrees. The Lee-Campbell Group constructed the CGED-Q ER from Classmate Books (*tongnian chilu*) published by groups of *jinshi*, *juren*, and *gongsheng* who earned their degrees at the same sitting of an exam, official rosters of *juren* called *xiangshilu* that listed everyone who earned their degree at a specific sitting of the exam, and a published list of nearly all *jinshi* called the *jinshi timinglu*.

Understanding the age dynamics of employees of a large preindustrial elite population like Qing civil officials provides broad insights into aging, exit from work, and related processes before the 20<sup>th</sup> century. Before the late nineteenth century, few if any organizations anywhere had a fixed retirement age. While there was a long history dating back to Roman times of pensions for soldiers and military officers, and pensions for civil servants and some other employees were introduced in France in the late 18<sup>th</sup> century, these were tied to length of service, not age. Many if not most other individuals worked as long as they were capable. Despite this, there are few large-scale prospective studies describe the resulting age composition of the employees of large organizations like the Qing civil service, especially the shares of employees still working after the typical ages of retirement in contemporary societies, or the age-specific exit rates.

## Background

### Entrance Into and Exit From Official Careers During the Qing

During the Qing, an exam or purchased degree was required for appointment as a civil official for anyone who was not a Bannerman. This study considers the three types of exam degrees that were the most common among civil officials: *jinshi* (进士), *juren* (举人), and *gongsheng* (贡生). The *juren* was awarded to passers of a provincial exam, and it qualified holders to go on to sit for the Metropolitan Exam in the capital. This was the basis for the awarding of the highest degree, the *jinshi*. *Gongsheng* was a lower-level degree, and the holders had a reputation for being of more modest means than *juren* or *jinshi*. Large numbers of county and prefectural officials had purchased *jiansheng* or *gongsheng* degrees but because we do not have any sources that allow us to calculate their ages, we do not discuss them further.<sup>2</sup> Holders of both exam and purchased degrees routinely used office purchase to enhance their chances of appointment or promotion, or secure more favorable positions (Zhang 2022).

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<sup>2</sup> Many central government officials were Bannermen, but they had alternative pathways to appointment, and we do not consider them further here. See Chen et al. (2020) for distributions of officials according to whether they were Bannermen, and if they were not Bannermen, degree type.

There were four ways by which officials left service: dismissal (*gezhi* 革職), retirement (*xiuzhi* 休致), death, and bereavement leave (*dingyou* 丁憂). Dismissal was for officials who had committed serious offenses. Retirement could either be forced by the court or requested by the official. In either case, it was due to age or illness (He 2012, Li 2023). Bereavement leave was for officials who lost a parent, and in principle was mandatory and lasted three years (Kutcher 1999). Overall, for the period between 1830 and 1911, Campbell and Gao (2023) reported that 13.8% of officials exited every year and mean career length was 8.3 years.

Officials could petition to retire when they thought their health was too poor to allow them to continue serving. According to one of the few studies that present counts of retirements (Bian 2012:49-50), 350 officials retired due to illness between 1723 and 1735, and another 521 died in office. These records are likely incomplete: comparison with the exit rates estimated in Campbell and Gao (2023) suggests that these illnesses and deaths would only have accounted for 1.6% and 2.2% of the exits that should have occurred during this time period, respectively.<sup>3</sup> Whereas the early Qing continued the Ming practice of approving most petitions to retire, from Yongzheng onward, petitions to retire submitted by high-ranking officials were scrutinized closely and unlikely to be approved if the official submitting the petition was judged capable of continued service (Bian 2012). Low-level officials' petitions were not subject to the same level of scrutiny and could be approved after routine checks. Some Qing emperors, most notably Qianlong, expected officials to exert all their energy to serve them, and were unhappy when officials they regarded as being in good health petitioned to retire.

The court could invoke forced retirement (*leling xiuzhi* 勒令休致) for officials who during their performance evaluation were found unfit because of age or illness.<sup>4</sup> According to the study of routine memorials during the Yongzheng reign by Li (2023), at least 439 civil officials were forced to retire from 1723 to 1735, that is an average of 37 per year. Following the same procedure as for Bian (2012), if the turnover of regular officials was like that reported in Campbell and Gao (2023) for the 19<sup>th</sup> century, the forced retirements recorded in the sources used by Li (2023) would have accounted for 1.9% of exits. If as Li (2023) acknowledges this was an incomplete count of the numbers of forced retirements during the period, the actual percentage may have been higher.

Bereavement leave may also have triggered exits from service. Officials who lost a parent were supposed to take three years of leave to mourn the deceased (*ding you* 丁憂). Afterwards, they did not resume their original post, but rather had to seek a new one. It may be that most of the officials who did go on leave were unable to find new posts once their leave was concluded, so that going on leave had the effect of terminating their employment. The handling of bereavement leave depended on the rank of the official. From Kangxi and Yongzheng onward, high-ranking officials were less likely to be allowed

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<sup>3</sup> The number of regular officials recorded in the *jinshe* 冊籍 hovered around 12,500. The 13.8% turnover per year reported by Campbell and Gao (2023) would therefore imply 1725 exits per year, and the 37 forced retirements per year recorded in the memorials would account for at least 2.1% of these 1725 exits.

<sup>4</sup> The "eight proscriptions" (*bafa* 八法) categorized the behaviors that could lead to a negative assessment during an evaluation. These included avarice (*tan* 貪), cruelty (*ku* 酷), weakness (*baruan* 罷軟), impropriety (*bujin* 不謹), old age (*nianlao* 年老), illness (*youji* 有疾), short-tempered (*fuzao* 浮躁) and incompetence (*caili buji* 才力不及). Old age or illness could be grounds for forced retirement, while the others could lead to demotion or in extreme cases dismissal. See Chapter 2 of Chü (1962).

bereavement leave (Kutcher 1999). They could be required to carry out their mourning while remaining in their post. For lower-level officials, bereavement leave may have remained routine, though we have yet to find any studies measuring its prevalence in the 19<sup>th</sup> century. Our own examination of the frequency distribution of gaps in the career records of officials the CGED-Q JSL does not reveal any evidence of an unusually large number of three-year gaps.

The relative frequency of the different modalities of exit is unclear. Added together, the counts of specific types of exits in published studies discussed above could only have accounted for a small fraction (less than 6%) of the exits that should have occurred if the exit rates in Campbell and Gao (2023) are correct.<sup>5</sup> More promisingly, Li (2023:6) tabulated *post hoc* annotations by clerks of reasons for subsequent exit from service on 3206 short resumes (*lvlipian* 履歷片) of officials who had imperial audiences (*yinjian* 引見). He found that 54.8% were by death, 22.6% were by dismissal, 2.2% were because of mourning leave, and 11.1% were by retirement, and 8.8% were by illness.<sup>6</sup> As Li (2023) points out, the representativeness of the officials who had audiences is unclear: relatively few officials had an imperial audience, and the officials who had audiences may not have been representative of officials overall.

### Norms and Customs Related to Retirement

Historical texts dating back to the Warring States and the early Han dynasty more than 2000 years ago suggest appropriate ages for beginning and ending careers. 60 and more commonly 70 repeatedly mentioned as ages at which officials should retire. A passage in the *Book of Rites* specifies 50 to 60 as an ideal age for handling important official matters, and 60 as an upper limit: “The strong years are before age 49. At age 50, vitality weakens, the hair whitens, and the color turns pale. At 50, one becomes a gentleman and may handle governance. After reaching 60, one should not be administering.”<sup>7</sup> Another passage in the *Book of Rites* states that officials retire at age 70: “大夫七十而致事” (Yang 1997:5).

Another Han dynasty text, *General Opinions of the White Tiger Conference* (*Baihu Tongyi* 白虎通義), stated “70 sui should be the end of an official’s career. Those who reached 70 sui cannot hear and see clearly. Moreover, they become crippled. They should retire and avoid blocking the path of virtuous people. By doing so, they could promote integrity and keep stigma away.” (Ban and Chen 1994: Vol 1. 251).<sup>8</sup> The recognition that refusal to retire could affect the organization’s internal dynamics by impeding the advancement of junior officials anticipates the discussion of vacancy chains in Whyte (1970) and the empirical findings in Bianchi et

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<sup>5</sup> The authors of these studies emphasize that the archival sources that they are using are not complete, thus the each type of exit is likely to have been more common than suggested by the numbers reported.

<sup>6</sup> The first 2 volumes of the published collection of resumes include 5555 short resumes, thus 57.7 percent had annotations of exit. We assume but cannot prove that when an official was annotated as having died, it was because they died in office. The collection is Qin Guojing 秦國經 et al., ed. *Zhongguo diyi lishi dang’an guan cang Qingdai guanyuan lüli dang’an quanbian* 中國第一 歷史檔案館藏官員履歷全編 (The complete collection of the archive of Qing Dynasty officials’ personnel records stored in the First Historical Archives of China), (Shanghai: Huadong shifan daxue chubanshe, 1997). 30 vols.

<sup>7</sup> “四十九以前，通曰強年。至五十，血氣已衰，發蒼白，色如艾也。五十堪為大夫服事也，得專事其官政。六十至老之境，不得執事。”《禮記集說》，卷一之一，第 39 頁。

<sup>8</sup> “臣年七十，懸車而致仕者，臣以執事趨走為職，七十陽道極，耳目不聰明，跂蹠之屬，是以退老去，避賢者路，所以長廉遠恥也。致事者，致其事於君，君不使退而自去者，尊賢者也。” For an introduction to the White Tiger Conference, see Twitchett and Fairbank (2008:762-764).

al. (2023). Finally, when the Tang poet Bai Juyi (白居易) wrote a poem to satirize officials who were too old to serve but did not petition for retirement, he identified 70 as the cut-off (Xie 2006: 169):

*Reaching 70 sui and then retiring, there are clear words in rituals and laws.  
How can those who are greedy for honor, pretend they haven't seen such words?  
How poor the 80 and 90 sui people are, whose teeth are lost and eyes are blurred!*

.....

*Old aged people must petition for retirement, and those who have won recognition  
should leave the officialdom.<sup>9</sup>*

.....

## Retirement during the Qing

Qing observers also mentioned 60 and 70 as retirement ages for officials. In the early 18<sup>th</sup> century, Jin Dechun (金德純), a Han Bannerman writing about the Eight Banners, stated in *Qijun Zhi* (旗軍志) that “men are excused from service when they are 60.”<sup>10</sup> Along these lines, Liang Zhangju (梁章鉅), a historian writing during the Qing, claimed that according to the ancients, the ideal age to begin a career was 40, the time after age 50 was the peak, and that because 30 years was an upper limit on the length of a career, they should retire at 70. Moreover, officials who started their careers earlier could retire earlier.<sup>11</sup> During the reign of Shunzhi, Manchu officials who reached age 60 were honored.<sup>12</sup> This suggests either a normative retirement age of 60, or recognition that 60 marked a transition in status.

Regulations sometimes specified ages at which officials were expected to have audiences with the emperor. In 1757, it was specified that ministry officials and certain other central government officials should be screened by court officials if they were 55 or older. In 1768, it was specified that second- and third-tier central government officials could have an audience at age 65. In 1799, it was specified that 70 should be set as a limit for audiences, and that this was a resumption of older rules.<sup>13</sup> From Jiaqing to the end of the Qing, 70 was fixed as an age for imperial audiences. While this doesn't indicate that 70 was a retirement age, it did set an upper limit on the ages at which officials could be introduced to the emperor, even though second- and third-tier capital officials could still be appointed to office after age 70.

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<sup>9</sup> “七十而致仕，禮法有明文 / 何乃貪榮者，斯言如不聞 / 可憐八九十，齒墮雙眸昏 / ... / 年高須告老，名遂合退身/...”

<sup>10</sup> Translation and reference from footnote 8 of Lee and Campbell (1997:165).

<sup>11</sup> “古人以四十為強仕之始，以五十為服官政之年，以七十為致仕之期。統計人生居官之日，前後不過三十年之久耳。顧亭林嘗言：‘漢順帝陽嘉元年，用左雄之言，令孝廉年不滿四十，不得察舉，皆先詣公府，諸生試家法，文吏課箋奏。宋文帝元嘉中，限年三十而仕。梁武帝天監四年，令九流常選，年未三十，不通一經，不得解褐。今則突而弁兮，已廁銀黃之列，死期將至，尚留金紫之班……’。蓋一人之聰明才力，用至三十年之久，已無不竭之勢。倘此三十年中無所表見施為，則此後更有所何所望。若今人未及四十，早入仕途，則致仕之期即不必以七十為限” 清】梁章鉅：退庵隨筆，卷四·官常一，江蘇廣陵古籍刻印社，1997年，第91—92頁。See 【清】梁章鉅：歸田瑣記，卷一·七十致仕，上海古籍出版社，2012年，第2頁 for an interpretation.

<sup>12</sup> “滿洲官員年至六十以上致仕者，照原品給與半俸銀米。若年未至六十致仕者不准支給。” Zhang (2006:455)

<sup>13</sup> 乾隆二十二年（1757年），“定部、院屬官五十五歲以上，堂官詳加甄別。三十三年（1768年），改定京察二、三等留任各官，六十五歲以上引見”。嘉慶三年（1799年）“京察二三等官引見，以年逾七十為限，尋復舊例。” Zhao (1977:3244).



On at least three occasions, imperial edicts specifically discouraged the use of age as the primary criteria for assessing officials. In 1727, observing that officials often underreported their ages in their official resumes, the Yongzheng Emperor suggested that what mattered for personnel decisions was whether someone could still manage affairs, not their age, and that older people could still be used in government.<sup>14</sup> In 1744, the Qianlong Emperor, issued the following edict criticizing the reliance on age during assessment: “In ancient times, Shen Gong 申公 and Fu Sheng 伏生 could still teach Confucian classics when they were old. Age cannot be used as a criterion for appointing people. For example, if someone is over 70 *sui* but still healthy and strong, can't he be selected? If someone is less than 70 *sui* but already sick and old, can we tolerate him? We should select people based on whether they can be used or not. But not using 70 *sui* as a limitation...” (Ji 1787).<sup>15</sup> In 1800, the Jiaqing Emperor, after meeting with a group of newly appointed prefects, issued an edict that older officials should not be discriminated against because of their age if their performance was otherwise unproblematic, and conversely, that the mistakes of younger officials who had less experience should not be excused because of their age.<sup>16</sup> Regulations and guidance on the appointment, promotion, or termination of officials during the Qing emphasized reference to officials' qualifications and performance. For example, an edition of the Qing *Huidian* compiled during the Guangxu reign in the late nineteenth century encouraged a focus on the qualifications of officials, their knowledge and conduct, adherence to the rule of avoidance, and other criteria.<sup>17</sup>

### Empirical Studies of Age at Appointment and Exit During the Qing

Empirical studies of the ages at which specific types of officials were appointed to their posts or left them indicate that the mean age of mid-level officials tended to be in the forties, with a wide dispersion, and that higher-ranked officials tended to be fifty or older.<sup>18</sup> Based on an examination of 5967 mostly mid-ranked officials who served during the Yongzheng reign, Wang (2007:368-370) reported that their mean age was 44.1 and the 94.4% of them were between ages 30 and 59. He calculated the mean ages of officials with specific titles and for most of these categories of officials, the mean age was around 43 or 44. In a study of 48 Grand Academicians (大学士), Liu (1998: 259-270) found that their average age at

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<sup>14</sup> “国家用人，惟论其才力之可以办事任职与否，原不以年岁之老少为重轻。如老成望重之人，宜于居官服政，年齿虽多，而精神尚健，即属可用之员。若年虽未老，而志气萎靡，则不可用。”《世宗宪皇帝实录》，卷六十二，雍正五年十月十日，第 952 页。

<sup>15</sup> “古來申公、伏生，老而傳經，人之可用與否，未可以年齒論，譬如年逾七十而強健者，亦不可銓選乎？未至七十而病憊龍鐘者，亦可姑容乎？惟當視其人之可用與否以為去取，不當以七十為限...”

<https://ctext.org/library.pl?if=gb&res=5293>. Shen Gong and Fu Sheng are two notable Confucian scholars in ancient China who were famous for their longevity.

<sup>16</sup> “考察知府之意，原为地方得人起见，并非沙汰年老之员。知府中即或有年龄稍增，而精力尚健，且办理地方事务历练熟悉，正资其治理。若督抚等误会朕意，惟将年老之员概行参劾，岂综覈名实之道。至初任年少之员，于吏治民情全未历练，或有限于才识，难望其振作为有者，即当据实劾奏。岂得因其年岁方强，稍涉瞻徇？”《仁宗睿皇帝实录》，卷七十二，嘉庆五年八月十二日，第 967 页。

<sup>17</sup> “凡铨政，别其流品，观其身言，覈其事故，论其资考，密其回避，验其文凭。凡官考试者、拣选者，各以时请旨，若咨送，则引见焉。”（光绪）钦定大清会典，卷十，吏部文选清吏司。

<sup>18</sup> Yang (1955) examined the schedules of work and rest of serving officials, including their working hours, but did not examine retirement or exit from office.



appointment to the post was 61.75, and the average exit age was 70.75. The average age at death of these officials was 76.65.

Studies of provincial leaders show that they also entered and exited from their posts at relatively advanced ages. Cheng (2008) examined senior provincial officials in the late Qing. For the 132 newly appointed governors (督抚) he studied, the average age was around 70. Of the newly appointed governors-general (总督) that he examined, 72.1% were 50 years of age or older. Of the Inspector-Generals (巡抚) in his sample, 59.7% were between 50 and 60. Xing (2013) found that for 47 newly appointed governors-general during the Daoguang reign, the average age was 59. Observing that the average age at which they had earned the *Jinshi* degree was 28-29, he suggested that it took them 30 years to reach their posts. While discussing the short terms of appointment of provincial governors, Guy (2013: 87) reported based on his survey of available biographical information that they were typically middle-aged, ranging from their forties into their sixties.

One study of retirement in a non-elite population in the Qing suggests a mean age of retirement around 60. In 18<sup>th</sup> and 19<sup>th</sup> century rural Liaoning, farmers on state-owned land were annotated as retired (*tui* 退) at a mean age of 61.6 *sui* (about 60 Western years) but variation around this mean was large (Lee and Campbell 1997, 165-166). Artisans, soldiers, and officials were also annotated as *tui*. Lee and Lee and Campbell (1997) speculated that the annotation as *tui* excused men from corvee labor and other responsibilities, and that it reflected their health condition. They suggested that the variation in age at being annotated as *tui* was too large for it to have been a status that was assigned automatically at a specific age.

The relationship between length of service and risk of exit for officials was weak, thus any relationship between age and the risk of exit is unlikely to be an artifact of age at first appointment. According to the study of career lengths and the years of experience of serving officials by Campbell and Gao (2023), exit rates of new officials were initially high and fell afterwards. For the officials fortunate enough to make it past the five-year mark, the chances of exiting in the next three months were mostly stable, and increased only slightly with years since first appointment.<sup>19</sup> Holders of *gongsheng* exam degrees had the highest exit rates, especially in the first years of service. They had a reputation for being the most likely to be from modest circumstances, and the most likely to be assigned to the least desirable posts. Holders of the highest and least common exam degree (*jinshi*) and the most common purchased degree (*jiansheng*) had the lowest exit rates.

## Data

We make use of the China Government Employee Dataset-Qing (CGED-Q) Jinshenlu (JSL). We describe the CGED-Q JSL in detail elsewhere (Ren et al. 2016, 2019; Chen et al. 2020), thus here we only describe features specifically relevant to the analysis of the organizational demography of officials. The *Jinshenlu* from which we created the CGED-Q JSL was a quarterly roster of civil officials. Originally it was produced by the government for internal use, but during the 19<sup>th</sup> century publishers began producing and selling commercial editions based on the original government editions. The original government editions only included officials who held regular appointments. Commercial publishers competed by supplementing

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<sup>19</sup> The study by Campbell and Gao (2023) of the organizational demography of the Qing civil service in terms of length of service (as opposed to age) examines exit rates as a function of time since appointment in more detail.

the records of regular officials in the government editions with records of additional officials who held temporary or irregular appointments. Sometimes also included more details about each official. The type and detail of this supplementary information varied across publishers and sometimes between editions from the same publisher. In this analysis, we only consider officials with regular posts that were recorded consistently in both government and commercial editions, and we exclude the officials with temporary or irregular appointments.<sup>20</sup>

The government and commercial *Jinshenlu* have limitations relevant to the analysis (Chen et al. 2020). They did not normally record officials in the prefectures or counties who held acting as opposed to regular appointments. Especially towards the end of the Qing, increasing numbers of local officials were appointed for at least short periods on an acting basis (Hu 2022, Wu and Wan 2017). The *Jinshenlu* did not include secretaries, advisors and others who served county and prefectural officials and who were not paid by the central government. Because communication was slow, appointments, transfers or exits from employment of officials outside the central government may have taken three or more months to be reflected in the *Jinshenlu* (Ren et al. 2016). If the lag was consistent and the delays in the recordings of entrances and exits were similar, this should not have affected estimates of career lengths. Similarly, while Wu (2022) provides specific examples of discrepancies between the information about local officials recorded in the *Jinshenlu* and other sources, these should not have affected the broader trends and patterns presented here. Another limitation is that the sources do not indicate why officials left office, or what they did after they left. Thus, we do not know if officials were terminated because of illness or poor performance, died, or retired because of illness.<sup>21</sup>

The basic information included in each record in the government editions of the *Jinshenlu* depended on whether officeholders were civilians or affiliates of the Eight Banners. For affiliates of the Eight Banners, records include given name, Banner affiliation, current post, whether they were Manchu, Mongol, or Han, Imperial Lineage affiliation (if any), and degree qualification (if any). For everyone else, records in government editions include surname, given name, province and county of origin, current post, and degree qualification. If an office was vacant, the name was left blank.

We produced career histories of officials in the CGED-Q JSL by probabilistic linkage of records across different editions. Campbell and Chen (2022) describe linkage procedures in detail, thus here we only summarize key features. Procedures for the linkage of records depended on whether they recorded Eight Banner affiliates. Linkage of officials who were not Eight Banner affiliates was straightforward because combinations of surname, given name, and province and county of origin were typically unique and could be used as primary attributes for linkage. The main challenge in linkage was accommodating inconsistencies across editions in the orthography of a character in a name, and the replacement of characters with different ones that looked or sounded similar. Probabilistic linkage allowed for matching on secondary attributes like position and degree held to offset inconsistencies in the characters recorded in name. Linkage of Eight Banner affiliates was more difficult because only given name and Banner

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<sup>20</sup> See Chen et al. (2020) for a comparison of the contents of government and commercial editions.

<sup>21</sup> The CBDB provides years of death for some officials extracted from gazetteers and other sources. Of the 102,477 officials who exited from service in our data, however, we could only link 589 to officials with years of death recorded in the CBDB. This figure is too low to be consistent with historical mortality levels. In almost all cases the year of death recorded in the CBDB matched the last year the official was observed in the CGED-Q, suggesting that the sources from which the CBDB drew information about year of death only provided it when an official died in office.

affiliation were available as primary attributes for linkage, and their combination was less likely to be unique than the combination of the primary attributes available for civilian officials. Again, probabilistic linkage allowed for use of secondary attributes to separate records of officials with identical given names and Banner affiliations.<sup>22</sup>

To obtain the ages of officials, we link to the China Government Employee Dataset-Qing (CGED-Q) Examination Records (ER). The sources from which the CGED-Q ER is constructed have two major advantages relevant to the task at hand. First, they provide more reliable information on the ages of degree holders than other sources like resumes that were compiled at later points in the career.<sup>23</sup> Second, because each roster lists all or nearly all the graduates who earned their degree at a specific sitting of the exam, including the ones never appointed to office, they can be used to measure the proportions of degree holders who were eventually appointed, and their time to appointment. For the CGED-Q ER, as of February 2022 we have 5,724, 26,870, and 11,990 records of *jinshi*, *juren* and *gongsheng* degree holders respectively from Classmate Books (*tongnian chilu*) that provide their year of birth or age at time of degree.<sup>24</sup> The Classmate Books for *juren* (*xiangshi tongnianchilu*) are from 28 different exam years, covering much of the period of the study.<sup>25</sup> We also have 29,971 records of *juren* from official rosters of graduates from the provincial exam (*xiangshilu*) that provide age at time of the provincial exam (*xiangshi*), and 27,425 records from the *jinshi timinglu* that provide the year in which each *jinshi* earned their degree, and their exam ranks.<sup>26</sup>

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<sup>22</sup> On top of the linkage described in Campbell and Chen (2020), we conducted two additional rounds. In the first, we grouped records by post, sorted them by year, and then for officials who appeared to be newly appointed, compared their information with that of the official in the previous record of the post, and if they matched on a string composed of their concatenated surname, given name, and province and county of origin with only one discrepancy, linked their records to those of the previous officials. Specifically, for records of newly appointed officials, we compute the Levenshtein edit distance between their concatenated surname, given name, and province and county of origin and that of the official in the previous record, and if the edit distance is 1, we link the records. This addressed a problem we identified where discrepancies in the information recorded for the same official in the same post in adjacent editions differed in ways that could not be addressed by adjusting the weights in the probabilistic linkage without causing other problems. To compute the edit distance, we use the STATA `strdist` package (Barker and Pöge 2012). In the second, we identified all situations where the career histories created in previous rounds had a gap where there was an edition with no record of that official, and matched those to records in that edition that were no linked to any other edition. We did this because in a manual inspection we found that many of the records not linked to any other records in previous rounds belonged to other officials but were not linked because of combinations of discrepancies.

<sup>23</sup> CBDB and other sources have years of birth for some officials obtained from gazetteers and other sources, but we have concerns about the representativeness of the sources and possible selection effects. Availability of gazetteers with relevant lists of officials varies by region and time period, and the criteria for inclusion of officials also varies. We have a specific concern that in such sources, prominent officials with longer careers who and therefore were older when they finished may be overrepresented.

<sup>24</sup> 3,574 *jinshi* records were transcribed directly from Metropolitan Exam Classmate Books (*huishi tongnianchilu*) for 15 sittings of the exam in the 19th century: 1829, 1833, 1835, 1859, 1865, 1868, 1871, 1876, 1877, 1880, 1886, 1889, 1890, and 1895. We synthesized another 2,174 by combining information about *huishi* exam year and performance in the *jinshi timinglu* with information on ancestry from their *xiangshi tongnianchilu* records.

<sup>25</sup> For 13 of these exam years (1810, 1816, 1821, 1825, 1828, 1832, 1835, 1840, 1844, 1849, 1855, 1870, 1879), we located and transcribed compendium volumes listing *xiangshi* degree holders from all provinces. For the remaining exam years, we have entered data for subsets of provinces for which we acquired *tongnianchilu*.

<sup>26</sup> Our collection includes *tongnian chilu* and *xiangshilu* that Huang Yifei acquired for his dissertation at Caltech and then very kindly shared with us.

Officials may have been older than the results below suggest because when they had the opportunity, they underreported their ages. Lu (2015) compared years of birth reported by the same official in their examination papers (朱卷) for the Provincial and Metropolitan Exams and their official resumes (履歷) and found that officials were more likely to underreport their age at later stages in their career. Lu concluded that ages reported early in the career, that is in the exam papers for the provincial exam, were the most reliable. Fang (2006, 142-149) found a difference of 2.4 years between the ages reported for officials in the examination papers and their true ages. By analysis of examination records and resumes, Zhang (2017) found that the actual and 'official' ages at which *juren* were awarded were 28.8 and 27.4, respectively, and that the actual and 'official' ages at which *juren* were awarded were 32.93 and 30.58, respectively.

For this analysis, we make use of a subset of the records in the CGED-Q JSL. First, we restrict to records of officeholders from 1830 to 1911, when coverage of the editions in the CGED-Q JSL is most complete. For this period, the CGED-Q JSL includes 3,379,958 records of civil offices, of which 3,144,711 (93.2%) were occupied. After we exclude records of temporary or irregular offices that were not consistently recorded in every edition and a small number of duplicated or invalid records, we are left with 2,451,549 records. After restricting to the officials who served between 1830 and 1911, that is the period for which we have densest coverage, we have 2,120,959 records. Finally, when we restrict to records of officials for whom we can obtain year of birth by linkage to the CGED-ER and then calculate age, we have 431,879 records of 61,944 officials.

## Results

### Age at Time of Exam Degree

The average ages at earning the *juren* and *jinshi* degrees were 31.9 and 34.8, respectively (Table 1). These are higher than the average ages in Fang (2006) and Jiang and Xiao (2005), but like those reported by Zhang (2019(1955):100-105).<sup>27</sup> The mean age for *gongsheng*, 30.6, was much lower than Zhang's (1955/2019) suggested average of around 40.<sup>28</sup> According to Figure 1, the dispersion of ages around the means was high. Although for each degree the modal age group for earning the degree was 30-39, non-trivial shares of candidates appeared to earn exam degrees when they were 20-29 or 40-49. A few *jinshi* and *juren* earned their degrees between age 50 and 60, but almost no *gongsheng* did. The shares of men earning their degrees before age 20 or after age 60 was very small, and problems with age recording cannot be ruled out.

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<sup>27</sup> Our mean age at attainment of the *jinshi* degree is higher than the ones reported by Fang (2006) and Jiang and Xiao (2005) from their samples. Fang (2006) reported 32.57 based on her sample from the resumes of *Jinshi*, Jiang and Xiao (2005) reported 32.1 for their sample of Jiangnan *jinshi*. Zhang (2019:100-105) reported an average age for *jinshi* of 36 *sui* before the Taiping Rebellion, and 34 *sui* after it. For *juren* in two sittings of the exam before the Taiping Rebellion, he calculated an average age of 31 *sui*. The differences between Fang (2006) and Jiang and Xiao (2005) on the one hand and Zhang (2019) and ours may reflect differences in the sources. Fang (2006) and Jiang and Xiao (2005) used information from *zhujuan* and resumes. These are limited samples of uncertain representativeness. Neither of them are complete records of entire exam degree classes. By contrast, Zhang (2019(1955)) and this paper both use *tongnian chilu*, which are nearly complete rosters of the passers of specific sittings of exams. We also use *xiangshilu*, which were official rosters of all the passers from a sitting of the provincial exam, and which included the ages from the paperwork they submitted to qualify to sit for the exam.

<sup>28</sup> Zhang (1955/2019) offered 40 as an estimate for *gongsheng* but did not provide a basis for the calculation like for the *jinshi* or *juren*, so it may have been a rough guess.

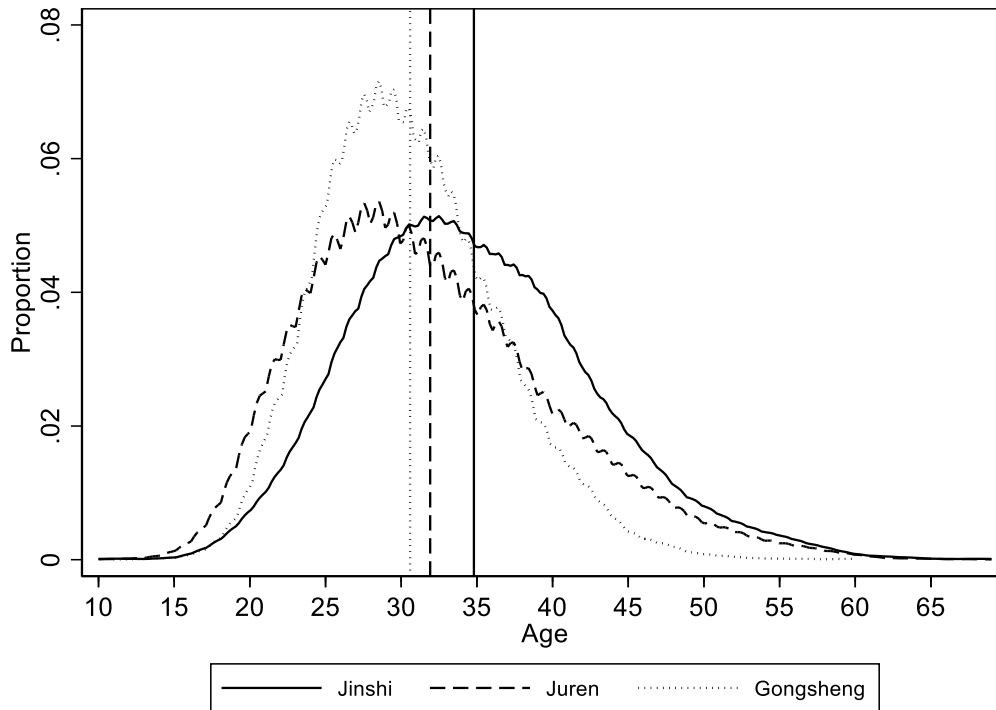


Figure 1 Age at Time of Degree for Jinshi, Juren, and Gongsheng (Kernel Density)

Table 1. Ages at Attainment of Examination Degrees, by Type of Degree

Exam Degree	Mean Age	Percent in Each Age group						Total	N
		10-19	20-29	30-39	40-49	50-59	60-69		
<i>Jinshi</i> (Metropolitan)	34.8	0.3	16.7	47.5	28.2	6.7	0.6	100.0	5,467
<i>Juren</i> (Provincial)	31.9	1.1	29.6	42.6	20.6	5.5	0.5	100.0	46,432
<i>Gongsheng</i>	30.6	0.4	34.8	53.2	11.0	0.5	0.1	100.0	10,045
Total	32.0	0.9	29.2	44.7	19.9	4.9	0.5	100.0	61,944

### Interval from Exam Degree to Appointment

Appointment dynamics differed dramatically for *juren* and *jinshi*. *Juren* could sit for the Metropolitan Exam three times. According to Table 1, 14.9 percent of *juren* went on to earn a *jinshi* within 30 years of earning the *juren*. Of those, 89.3 percent (13.3/14.9) did so within 15 years, and 75.8 percent (11.3/14.9) did so within 10 years. As discussed in more detail below, a majority of the men who proceeded to a *jinshi* were also appointed. For example, of the *juren* who earned a *jinshi* within 30 years, 79.7 percent (11.9/14.9) had an appointment within the same time frame. Those who never passed the *jinshi* could seek appointment to lesser posts, but often waited for years before they were appointed. Most were never appointed. Only about one-third of *juren* (31.4 percent) who never earned the *jinshi* were appointed within 30 years of the degree. Of those, more than half, 58.6 percent, waited more than 15

years.<sup>29</sup> One-third (31.4 percent) waited more than 20 years. We expect that variation in the age at earning the *juren* apparent in Table 1 combined with large variation in the time to appointment for *juren* to produce a wide range of ages at first appointment.

	Years Since <i>Juren</i> Awarded						
	1	5	10	15	20	25	30
Appointment with <i>Juren</i> only	0.3	2.7	6.7	13.0	21.9	27.8	31.4
<i>Jinshi</i> degree	2.7	6.6	11.3	13.3	14.4	14.8	14.9
Appointment with <i>Jinshi</i>	0.1	2.0	5.0	7.6	9.6	11.0	11.9
Appointment with <i>Juren</i> or <i>Jinshi</i>	0.4	4.7	11.5	19.4	29.1	36.0	40.1

Most of the men who earned the *jinshi* were appointed. Table 3 presents the proportions of *jinshi* appointed by time since degree, according to their tier and rank within tier on the Palace Exam that they sat for after being awarded the *jinshi*. According to the results, those in the first tier and the upper portion of the second tier were appointed almost immediately, typically to the Hanlin Academy for further study and preparation for assignment to a post. The remainder of the second tier were nearly all appointed, though not as quickly. The appointment chances of candidates in the third tier were tied to their rank within that tier. 87.2% of the top 49 candidates would be appointed, as would 74.1% of the lowest ranked candidates, though they might have to wait some time.

Palace Exam Tier and Rank	Years Since <i>Jinshi</i>					N
	1	5	10	15	20	
Tier 1 and Tier 2 #1	91.5	97.1	100.0	100.0	100.0	140
Tier 2 2-49	89.4	95.7	96.8	97.6	97.8	1612
Tier 2 51+	81.0	89.8	92.7	95.2	94.3	2033
Tier 3 1-49	54.8	72.6	82.4	87.6	87.2	1596
Tier 3 50-99	35.3	57.9	75.6	81.7	83.2	1603
Tier 3 100+	23.9	42.2	61.3	72.5	74.1	1507
Total	58.4	72.7	82.9	87.5	88.3	8491

The pace at which men were appointed depended on their performance in the Palace Exam. According to Table 3, within one year of the exam, around 90 percent of the Tier 1 and the top Tier 2 degree holders were appointed. By contrast, less than one-quarter of the men at the bottom of Tier 3 were appointed. Differences are wide until at least 10 years after earning the degree, at which point they begin to close. Such results raise the possibility that differences in the age at earning the *jinshi* may have combined with differences in the pace of appointment to widen the range of ages at which *jinshi* were first appointed.

### Ages at Appointment, Service, and Exit by Degree and Location

On average, officials with exam degrees started their careers in their mid-forties and ended them in their mid- to early-fifties. Table 4 presents mean ages at first appointment, the ages of serving officials, and

<sup>29</sup> (31.4-13)/31.4

ages at exit, as well as the percent entering and exiting between ages 60 and 70, and above 70. The average age at appointment was 44.8. First appointment after age 60 was rare: only 7.4 percent of officials were first appointed between ages 60 and 70, and 2.1 percent after age 70. The average age at exit was 53.8. Nearly one-third of officials exited after age 60: 22.8 percent between ages 60 and 70, and 9.6 percent above age 70. As a result of these age patterns of entrance and exit, the average age of serving officials was 50.9. More than one-fifth (22.3) were 60 years of age or older, that is past the retirement age that was common in East Asia until recently. 4.9 percent were more than 70 years old, that is older than the retirement age for imperial officials suggested by Liang Zhangju and referred to in some other historical texts.

Table 4. Ages at Appointment, Service and Exit, 1830-1911

	Appointment				Currently Serving				Exit			
	Mean Age	% 60-69	% > 70	N	Mean Age	% 60-69	% > 70	N	Mean Age	% 60-69	% > 70	N
<i>Non-Central</i>												
Jinshi	44.0	3.5	0.5	2,585	49.8	13.6	2.2	90,240	52.9	21.1	3.8	4,058
Juren	48.8	11.0	2.9	7,972	53.8	23.0	6.9	188,662	57.2	28.4	13.7	8,467
Gongsheng	44.8	9.7	4.9	1,833	49.5	14.9	6.9	41,710	52.9	20.1	12.8	1,949
<i>Subtotal</i>	47.2	9.3	2.7	12,390	52.1	19.3	5.6	320,612	55.4	25.2	10.8	14,474
<i>Central</i>												
Jinshi	36.2	1.1	0.2	2,607	44.6	7.4	1.4	46,922	45.8	10.8	2.5	1,697
Juren	38.6	1.9	0.1	724	43.9	6.3	1.3	10,027	44.1	6.6	2.4	593
Gongsheng	37.3	0.3	0.3	322	44.4	4.9	3.7	3,455	42.5	2.3	3.5	256
<i>Subtotal</i>	36.8	1.2	0.2	3,653	44.4	7.1	1.5	60,404	45.0	9.0	2.6	2,546
<i>Total</i>												
Jinshi	40.1	2.3	0.3	5,192	48.0	11.5	2.0	137,162	50.8	18.1	3.4	5,755
Juren	47.9	10.3	2.7	8,696	53.3	22.2	6.6	198,689	56.3	27.0	13.0	9,060
Gongsheng	43.7	8.3	4.2	2,155	49.1	14.2	6.7	45,165	51.7	18.0	11.7	2,205
<b>Total</b>	44.8	7.4	2.1	16,043	50.9	17.4	4.9	381,016	53.8	22.8	9.6	17,020

*Jinshi* officials were much younger than *juren* and *gongsheng* officials because they were appointed much more quickly after they earned their degree (Tables 2 and 3). On average, *jinshi* started their first formal appointment when they were 40.1 and exited when they were 50.8. Those currently serving were on average 48.0 years old. Only 2.6 percent of *jinshi* officials started their first formal appointment after age 60. *Juren*, who according to Table 2 had a long wait for appointment if they did not earn a *jinshi*, started and ended their careers the latest, at 47.1 and 56.3 years of age, respectively. As a result of the long lag between degree and appointment for *juren* in Table 1, 13 percent of *juren* started their first regular appointment after age 60, and 40 percent of them ended their careers after age 60. *Gongsheng* were in between *jinshi* and *juren*: they started and exited a few years later, on average at 43.7 and 51.7. As a result, 12.5 percent of *gongsheng* started their careers after age 60, and 29.7 percent ended their careers after age 60.

Central government officials (京官) entered and exited at much younger ages than non-central government officials (外官) and those in service were younger overall. This is a product of differences in the composition of officials in terms of type of degree, and differences in age at appointment by degree



type: central government officials were more likely to have a *jinshi* degree, and non-central government officials were more likely to have a *juren* or *gongsheng* degree. According to Table 4, the average age at first appointment for central government officials was 36.8. Non-central government officials were on average 47.2 years old at their first appointment, that is more than 10 years older.

As a result, a larger share of non-central than central government officials were still working after the age at retirement in most of contemporary East Asia. More than one-third of non-central government officials (36 percent) were more than sixty years old at their time of exit, versus less than one-eighth of central government officials (11.6 percent). The gap in the proportion exiting after age 70 was even more pronounced: 2.6 percent of central government officials versus 10.8 percent of non-central government officials. As a result, central government officials were on average younger than non-central government officials: 44.4 years versus 52.1 years. One-quarter of non-central government officials (24.9 percent) were over age 60, versus only 8.6 percent of central government officials. Differences in the share of officials aged 70 or over were also pronounced: 1.5 percent of central government officials versus 5.6 percent of non-central government officials.

Location interacted with degree type to produce even more pronounced differences in age composition. *Juren* who served outside the central government were the oldest officials in the civil service. On average, they were 48.8 years old when they started and 57.2 years old when they ended. 13.9 percent of *juren* outside the central government were older than 60 when they started their careers, and 42.1 percent were older than 60 when they ended their careers. One-sixth, 13.7 percent, were more than 70 when they ended their careers. As a result, *juren* serving outside the central were the oldest officials: an average 53.8 years old, with 29.9 percent over age 60, and 6.9 percent over age 70. At the other extreme, *jinshi* serving in the central government were the youngest officials. They were on average 36.2 years old when they started, 45.8 years old when they exited, and 44.6 years old while serving.

### Ages of Serving Officials by Location, Rank and Degree

The oldest serving officials were the highest-ranked (1-4 *pin*) officials, especially those in the central government, and the *juren* and lowest-ranked (8-9 *pin*) officials serving outside the central government. Table 5 presents ages of serving officials by location, rank and type of examination degree. Figure 2 summarizes the basic patterns by rank and degree graphically. According to Table 5, 30 percent of 1-4 *pin* central government officials were over age 60. The large shares of top-ranked officials presumably reflect the length of time required to reach high offices. Meanwhile, 28.8 percent of 8-9 *pin* non-central government officials and 29.9 percent of *juren* serving outside the central government were aged 60 and over. The higher ages of *juren* outside the central government, meanwhile, simply reflects the relatively late ages at appointment in Table 4. It is less clear why it is that according to Table 5, 8-9 *pin* officials outside the central government have high proportions above age 70 regardless of their degree.

Table 5. Ages of Serving Officials by Location, Rank and Degree, 1830-1911

	Degree Type												N
	<i>Jinshi</i>			<i>Juren</i>			<i>Gongsheng</i>			Total			
	Mean Age	% 60-69	% > 70	Mean Age	% 60-69	% > 70	Mean Age	% 60-69	% > 70	Mean Age	% 60-69	% > 70	
<i>Non-Central</i>													
1-4 <i>pin</i>	53.2	20.0	2.7	53.4	20.4	4.1	53.4	21.4	5.0	53.3	20.1	3.0	25,678
5-7 <i>pin</i>	48.9	11.4	1.5	53.8	21.6	7.4	51.0	15.6	4.7	51.0	15.8	4.1	120,744

8-9 pin	47.5	14.6	8.3	53.9	23.6	6.8	48.8	14.5	7.9	52.8	21.8	7.0	171,421
Subtotal	49.9	13.6	2.1	53.8	23.0	6.9	49.6	15.0	6.9	52.2	19.4	5.6	317,843
<i>Central</i>			88,452		187,965			41,426					317,843
1-4 pin	54.5	24.1	6.7	47.8	8.6	1.6	62.1	48.0	17.0	54.2	23.5	6.5	6,466
5-7 pin	43.1	4.9	0.6	43.8	6.1	0.8	43.9	3.2	1.3	43.2	5.0	0.7	47,096
8-9 pin	37.5	2.8	0.0	43.9	6.7	3.4	43.2	8.6	1.6	42.7	6.2	2.7	1,571
Subtotal	44.6	7.5	1.4	44.0	6.3	1.2	44.8	5.8	2.1	44.5	7.2	1.4	55,133
<i>All</i>			45,026		8,121			1,986					55,133
1-4 pin	53.5	20.9	3.6	52.8	19.3	3.9	54.1	23.5	6.0	53.5	20.8	3.7	32,144
5-7 pin	46.7	9.0	1.1	52.6	19.7	6.6	50.1	14.0	4.2	48.8	12.8	3.1	167,840
8-9 pin	46.9	14.0	7.9	53.8	23.4	6.8	48.8	14.5	7.9	52.7	21.6	7.0	172,992
<b>Total</b>	<b>48.1</b>	<b>11.6</b>	<b>1.9</b>	<b>53.4</b>	<b>22.3</b>	<b>6.7</b>	<b>49.4</b>	<b>14.6</b>	<b>6.7</b>	<b>51.0</b>	<b>17.6</b>	<b>5.0</b>	<b>372,976</b>
<b>N</b>		<b>133,478</b>			<b>196,086</b>			<b>43,412</b>					<b>372,976</b>

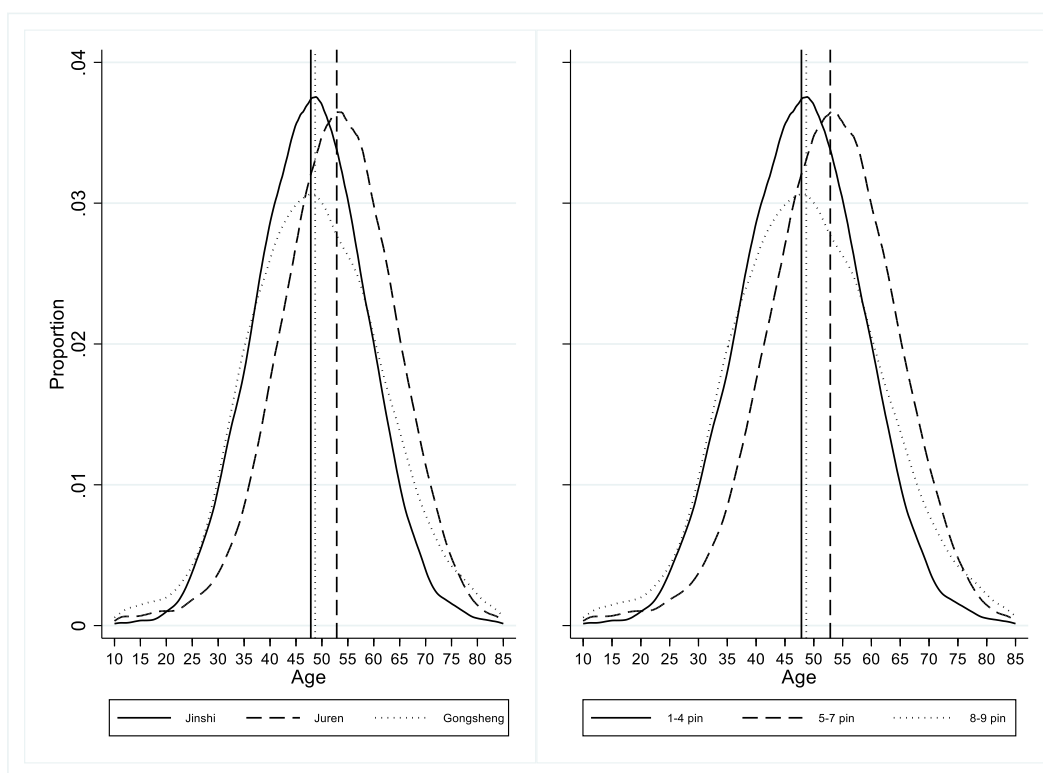


Figure 2 Age Distributions of Serving Officials by Degree and Rank (Kernel Density)

### Age Specific Exit Rates

From our examination of age-specific rates of exit, there is no evidence of a specific age at which exit was especially common and which therefore might have been a customary or normative age at retirement. Figure 3 presents the age-specific rates of exit in the next year by single years of age for officials. According to Figure 3, exit rates were nearly constant through age 50 and then rose steadily afterward. There were no spikes at ages 60 or 70 corresponding to the ages mentioned in the literature as retirement ages. We do not present age patterns of exit by degree or official rank because according to our calculations, they were all similar.

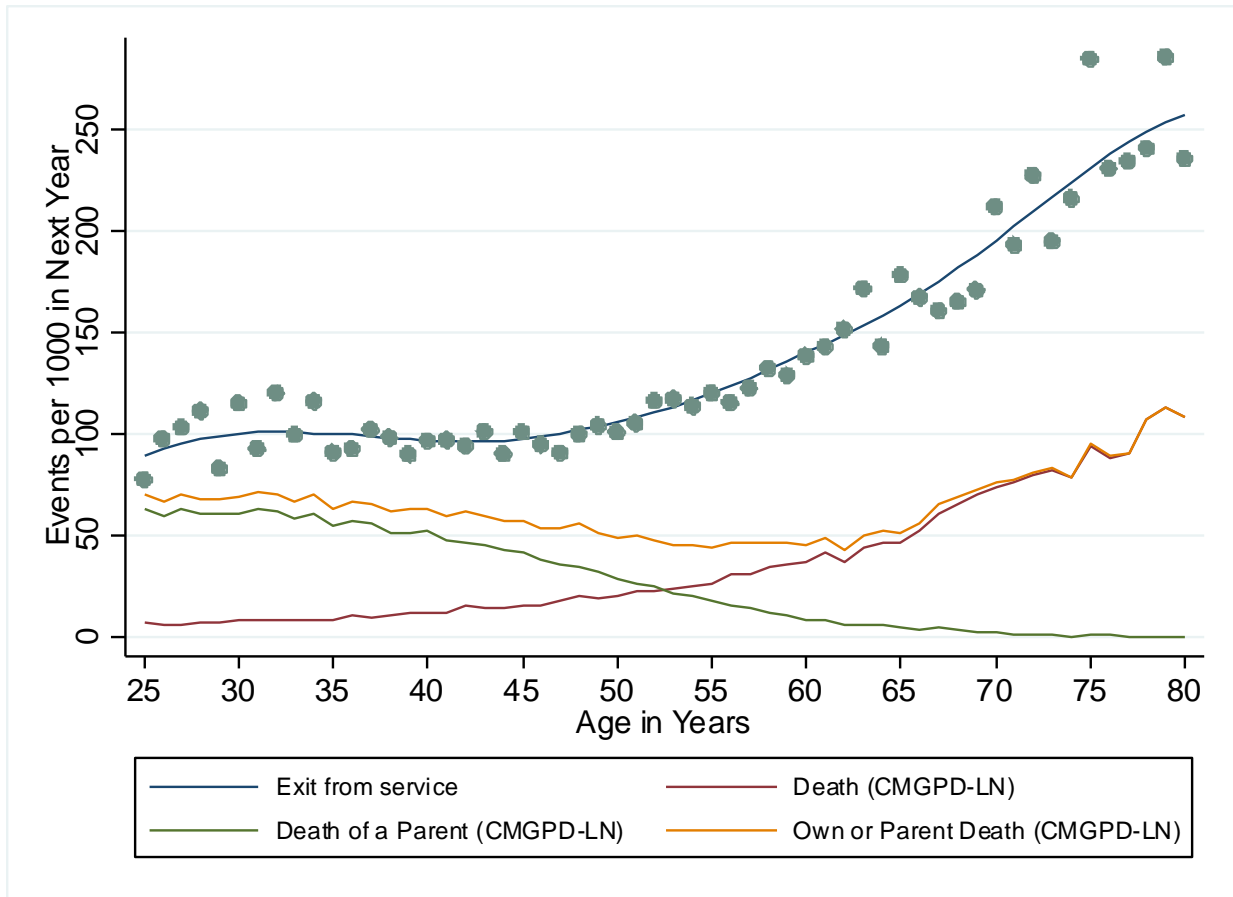


Figure 3 Exits per 1000 in the Next Year, 1830-1911

### Estimated Exits as a Result of Death Or Bereavement

Death and bereavement together may have accounted for a large share of exits. For comparison, Figure 2 also includes age-specific death and bereavement rates of males in rural Liaoning in the 19<sup>th</sup> century recorded in the China Multigenerational Panel Dataset-Liaoning (CMGPD-LN). By bereavement rate, we mean the chances at each age of losing a parent, which CMGPD-LN allows us to measure directly. If our assumption is correct that for low-ranked officials bereavement leave was still common in the 19<sup>th</sup> century, and if we are also correct that few if any officials found new appointments when they completed their leave, Figure 3 suggests that at every age until 50 or so it could have accounted for most exits. The chances of bereavement decline with age because fewer and fewer officials still had surviving parents. After age 50, death would have become more important as a reason for exit, not just because bereavement became less common, but also because death rates rose.

According to life table calculations in which we applied the CMGPD-LN death and bereavement rates to the observed numbers of officials at each age, and then divided the total numbers of estimated deaths and bereavements by the actual numbers of exits, 22.8 percent of exits may have been the result of death, and 26.7 percent the result of bereavement leave. Adding these together, almost one-half (22.8+26.7 percent) of exits may have been due to death or bereavement. The figures for the share of accounts accounted for by death are a lower bound estimate: death rates in the rural northeast Chinese

populations covered by the CMGPD-LN were mostly lower than those reported for the small number of populations elsewhere in China for which data are available (Campbell and Lee 2004).<sup>30</sup> The bereavement estimates rely on an assumption that low-level officials continued to go on bereavement leave and then didn't return, even though Kutcher (1999) found that high-ranked officials were less likely to be allowed to take bereavement leave. The share who would have exited through death is much smaller than reported by Li (2023) based on their manual count of annotations in short resumes, but it may be that the short resumes were unrepresentative.

An officials' chances of ending their career by bereavement or death would have depended on their age. Table 6 presents multiple-decrement life table estimates of the shares of currently serving officials at different ages whose careers would end with death or bereavement, again assuming the age-specific rates of death and bereavement observed in the CMGPD-LN.<sup>31</sup> Young officials are most likely to end their careers because of bereavement. Of the relatively small number of officials who were only 30, more than half may have ended their careers because of bereavement leave. Of the officials who were currently 50, that is at a more typical age, 29 percent would have ended their careers by dying in office, while another 15.9 percent could have experienced bereavement, gone on leave, and never returned. 44.9 percent may have eventually died or experienced bereavement.

Table 6. Estimated Percentages of Officials at Selected Ages Who Will Eventually End Their Careers by Death or Bereavement Leave

Current Age	Estimated Percent of Officials Eventually Ending Their Careers by		
	Death	Bereavement	Either
30	14.6	55.4	70.0
40	22.0	37.5	59.5
50	29.0	15.9	44.9
60	37.2	4.0	41.2
70	45.7	0.7	46.4

## Time Trends

The share of serving civilian (民人) officials who were aged 60 or higher evolved during the late 19<sup>th</sup> century, and trends varied according to their degree type and rank.<sup>32</sup> Figure 2 presents the proportions of serving officials by year from 1850 to 1900 who were aged 60-70 and 70 or above, differentiating on

<sup>30</sup> Moreover, officials serving in locations away from their hometowns may have had an especially high risk of falling ill and dying because they were exposed to diseases and other pathogens different from the ones they grew up with.

<sup>31</sup> To summarize, we constructed a multiple-decrement life table that included the age-specific exit rates calculated directly from the CGED-Q JSL, and then assumed age-specific death and bereavement rates like those in the CMGPD-LN. This allowed an estimate of the share of officials at each age whose eventual exit would be due to death or bereavement.

<sup>32</sup> We start the analysis of average age by year in 1850 because we have relatively few sources that would allow use to estimate years of birth for officials who passed the exam before 1830. Recent passers may be overrepresented before 1840.

the left between *jinshi* and *juren*, and on the right by bureaucratic rank (*pinji*).<sup>33</sup> The ages of *juren* and *jinshi* officials in the left panel followed similar trends. The shares of *jinshi* and *juren* aged 60 to 69 declined steadily until 1880, rose dramatically between 1880 and 1890, and then declined again after 1890. According to Figures 2 and 3 of Campbell and Gao (2024), the exit rates of high- and mid-ranked officials rose until around the end of the Taiping Rebellion in 1864, especially if they were outside the central government. Other calculations we have carried out show a corresponding increase in the share of posts outside the central government that were vacant. We speculate that after the end of the Taiping Rebellion, the new officials who were appointed to fill the vacancies that had accumulated were younger than currently serving officials. We further speculate that between 1880 and 1890, the officials who rose to prominence during the Taiping, possibly riding the coattails of Zeng Guofan and others, began to reach their sixties. As they aged out of their 60s in the next decade, the share of officials aged 60 to 70 fell.

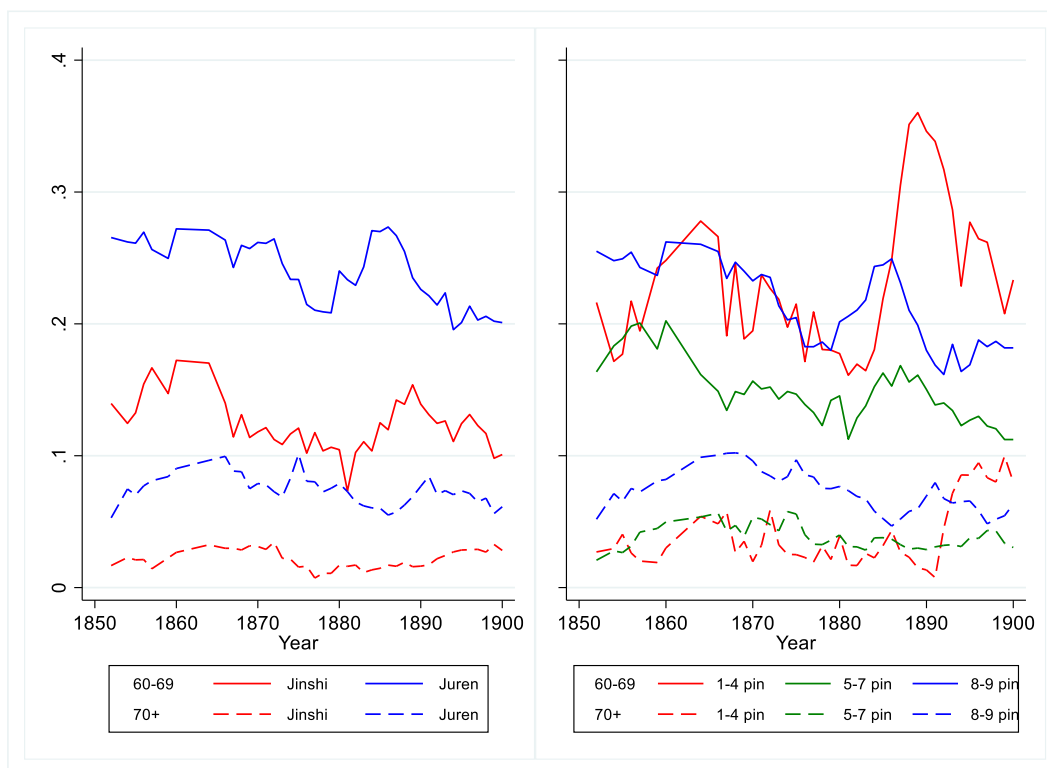


Figure 2 Proportion of Civilian (民人) Officials Aged 60-70 and 70+, by Degree and Rank

Comparison of trends by the bureaucratic rank of the officials in the right panel of Figure 2 brings them into sharper relief. The most striking finding is the rapid increase during the 1880s in the share of high officials (1-4 *pin*) who were 60 to 70. Ten years later, as they aged, the share of high-ranked officials aged 70 and higher rose. This is consistent with the speculation above that a cohort or clique of officials who came to prominence during the Taiping Rebellion occupied key positions and then aged in place,

<sup>33</sup> We exclude *gongsheng* from the analysis of time trends because large time gaps between available exams leads to spurious increases in average age as the number of years since the last exam for which we have data increases.

reaching their 60s in the 1880s, and their 70s in the 1890s.<sup>34</sup> To the extent that this cohort monopolized top positions and did not exit at normal rates, their presence may have constrained the promotion chances of the next generation of officials, and in turn, the officials below them (Bianchi et al. 2023; White 1970). While there has been considerable discussion of how the increase in the late Qing in the numbers of holders of purchased degree may have increased the competition for appointment, these results, combined with those in Campbell and Gao (2024) suggest that opportunities for advance for those who already served may also have deteriorated.

## Conclusion

These descriptive results provide new insights into the age dynamics and composition of Qing civil officials during the 19<sup>th</sup> century, especially the last half. There are several striking descriptive findings that need follow-up to assess their implications for the most striking findings. First, the extremely long wait to appointment for *juren* who did not earn a *jinshi*, and their generally low chances of ever being appointed, raises questions about what they and their family were thinking when they made the enormous investments required to prepare for the exams. Presumably attaining the status of a *juren* degree holder and the associated privileges was a reward for many, but we need to learn more about the activities and the mindset of the result large pool of elite degree holders with at best dim prospects for eventual appointment.

We found that while the chances of exit increased with age, there was no specific age that appeared to be a statutory or normative retirement age at which especially large numbers of officials left service. The common references in classic texts to 70 as a normative age for exit from service, in other words, do not have an empirical basis, at least not in the late Qing. Rather, the evidence is consistent with the imperial edicts and decrees from Yongzheng and later emperors that discouraged consideration of age in assessing officials, and promoted an emphasis on their fitness for service, regardless of age. The prevalence of fixed retirements for public employees all over East Asia appears to be of relatively recent vintage and doesn't appear to reflect continuity with past practice, at least not in Qing China.

Further research is necessary to assess whether our conclusion that a large share of exits from service were due to death, bereavement, and retirement due to poor health. Most importantly, of course, we need additional research on bereavement leave among lower officials to assess whether it remained common, as we have assumed, or followed a declining trend like the one for high officials described by Kutcher (1999). As we showed above, if our estimates of the share of officials who died in office or would have experienced bereavement are correct, as many as half of all exits may have been due to death or

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<sup>34</sup> More speculatively, this may have reflected the durability of the cliques that emerged during the suppression of the Taiping Rebellion or during the response to other disruptions. For example, Zeng Guofan recommended dozens of associates from the Hunan Army to the court, including Li Xuyi, Peng Yulin, Shen Baozhen, and Li Hongzhang. Many of them went on to become provincial governors. Similarly, Luo Bingzhang recommended Zuo Zongtang, Liu Rong, and Han Chao, and they all went on to become high officials in the border areas. Zuo Zongtang went on to become governor of Zhejiang. To the extent that these officials and the ones they promoted became difficult to dislodge because they formed a clique, it may have generated a pattern like the one in Figure 2. See the entry for Tongzhi Year 1, Month 1, Day 8 (Volume 15 pages 419-420) and Tongzhi Year 1, Month 1, Day 23 (Volume 17 pages 419-420) of *Muzongyi Huangdi Shilu* (穆宗毅皇帝實錄).

bereavement. If death rates were higher than the ones from the CMGPD-LN that we used in our calculations, and even higher share of exits may have been due to death or bereavement. Presumably additional officials left their offices because of poor health. Overall, it is possible that after all these factors are accounted for, the chances of exit for an official in good health whose parents had already both passed away were very low.

If our estimates are correct, and the chances of exit for an official in good health whose parents had already passed were low, the implications for the dynamics of competition for appointment need consideration. The expansion during the 19<sup>th</sup> century of the pool of candidates for appointment because of degree purchase has already been widely noted (Wu 2013, Zhang 2022). Competition was so intense that, as we showed above, even *juren* had low chances of being appointed. If they were appointed, it was often after years or decades. The possible role of low exit rates in accounting for intense competition for appointments has received less attention. If there had been more exits for reasons other than death, bereavement, and ill health, for example, because petitions to retire were more likely to be approved, or more officials were terminated for poor performance after their assessment, the number of vacancies into which candidates could be appointed or promoted would have been larger, possibly helping to shrink the pool of candidates for appointment or promotion. Higher exit rates for older, higher-ranked officials would have had disproportionate impacts because each of their exits could have initiated a 'vacancy chain' (White 1970), according to which promoting an official into their vacant position would in turn free up a post into which someone else could be promoted or appointed.



## Acknowledgments

Earlier versions of this manuscript were presented at the Conference in Honor of Philip T. Hoffman at the Division of the Humanities and Social Sciences at the California Institute of Technology, April 2023, the European Society for Historical Demography meetings in Pecs, Hungary in June 2019, and at the Quantitative History Brownbag at Hong Kong University, September 25, 2023.

This research was supported by HK RGC General Research Fund 16602621 (Campbell PI) and HK RGC Areas of Excellence AoE/B-704/22-R (Chen Zhiwu PI). For a portion of the time during which Campbell was working on this manuscript, he was a 2022-23 Fellow at the Stanford Center for Advanced Study in the Behavioral Sciences.

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