Education and Ideology: How Imperial China was Democratized*

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Abstract

The relationship between education and democracy has long been debated and is well rehearsed. By focusing on ideology as the channel underlying the effect of education, and by employing the number of Chinese students studying in Japan to proxy for the effect of exposure to democratic ideology in the context of the 1911 Chinese Revolution, we find that an additional overseas student in a county can significantly account for higher participation in democratic parties (0.311), greater representation in the provincial assembly (0.896), and more frequent riots (0.694) in that county. But the effects of ideology are heterogeneous, patterned systematically upon the academic disciplines in which the overseas students specialized while in Japan. Specifically, only students who studied arts and social sciences were affected by their exposure to the democratic ideals; those who studied science, medicine, and engineering – the so-called "useful knowledge" – were unperturbed. Perhaps the most interesting finding of all is the radicalizing effect of ideology, as gauged by the more frequent riots in counties with more returning overseas students per capita, as well as the moderating influences of educational attainment, the cultural norms of Confucianism stressing subordination and social harmony, and economic interest.

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1 Introduction

Democracy is an ideology to which a great majority of the world's population – past and present – has aspired.[1] While how democracy is disseminated over time has long been debated among economists and political scientists, proponents of "modernization theory" view the spread of democracy as highly correlated with per capita GDP growth in general, and schooling in particular (Barro, 1999, 2015; Easterlin, 1981; Glaeser et al., 2004; Lipset, 1959).[2] Schooling arguably makes one more appreciative of democracy, perhaps because it helps lower the cost of social interaction and political engagement, thereby enlarging the constituency for democracy (Barro, 1999; Glaeser, Ponzetto, and Shleifer, 2007).[3]

Existing literature suggests that ideology is likely the key channel through which education impacts democracy. For example, compulsory schooling laws were introduced in mid-19th-century America to inculcate in the European migrants American civic values (Bandiera et al., 2019). Likewise, the United States have established numerous scholarship programs to finance students from all over the world to study there so that they will promote democracy in their home country upon returning (Spilimbergo, 2009). Democratic governments are not the only ones eager to foster the spread of the values they hold dear; authoritarian regimes also tend to shape the ideological values they endorse by tinkering tweaking with the school curriculum. Using a textbook reform in China between 2004 and 2010 as their case study, Cantoni et al. (2017) find that the new curriculum has intendedly led to "more positive views of China's governance, changed views on democracy, and increased skepticism toward free

[1] The term ideology was first coined in 1817 by *Antoine Destutt de Tracy*.

[2] Acemoglu et al. (2005), however, contend that the cross-sectional correlation between education and democracy is due to omitted variables; once country fixed effects are controlled for the relationship in question disappears. But see Barro (2015) for a counterargument. A different argument, advanced by Przeworski et al. (2000a), is that levels of development does not cause democracy; it merely stabilizes those democracies that have already been established.

[3] The argument that increased schooling would lead to stronger democratic consciousness has received experimental support from a randomized scholarship scheme in Kenya (Friedman et al., 2016). However, Campante and Chor (2012a) find that, perhaps because political participation comes at a high opportunity cost for the more educated, political participation is less responsive to schooling in countries with a higher skill premium.

market reforms" (p. 338).[4]

The importance of ideology for revolutions or social and political change requires no further elaboration.[5] For instance, the idea of constitutionalism bred during the Enlightenment had culminated in the French Revolution,[6] whereas Marxism had inspired many subsequent ones. Like old wine in a new barrel, the "Color Revolutions" today are also deeply motivated by the people's aspirations for democracy (Beissinger, 2007, 2013). While the specific root cause of these revolutions may differ, they were all driven by ideology – essentially the way by which certain influential individuals or even an entire society rationalizes itself (Kinder, 1983; Luskin, 1997; Merelman, 1969; Mullins, 1972; Putnam, 1971; Sartori, 1969).

By employing the 1911 *Xinhai* Revolution in China for context, we provide causal evidence on how education, effectuated through the channel of ideology, could promote democracy by changing one's political beliefs and engagement ranging from participation in a democratic party to representation in the provincial assembly – the latter an important milestone of constitutional development in the final few years of China's imperial dynasty. In particular, we find interesting evidence of how democracy effectively radicalized one's behavior. We choose the 1911 Chinese Revolution not merely because of its historical significance in eroding the imperial bureaucracy that had ruled China since 221 B.C.; our choice is also premised on the vantage point of empirical strategy. To restrict the spread of Christianity (and trade to a lesser extent[7]), Qing China had implemented a "Closed-door Policy" since the 18$^{\text{th}}$ century; it was not until the mid-19$^{\text{th}}$ century after suffering defeat in several major wars that China reluctantly opened up to the West.[8] Qing China's response of modernizing its economy and subsequently reforming its many institutions, which included

[4]Evidence indeed finds that individuals' preferences are steeped in the political regime to which they are exposed (Alesina and Fuchs-Schündeln, 2007). See also Clots-Figueras and Masella (2013).

[5]The importance of ideology for political change has had a long tradition in political science.Walzer (1963), for example, argues that through revolutionary ideology, a select group of individuals might willfully and systematically employ political violence to influence the social transformation of an established order.

[6]The works of Voltaire, Rousseau, and Locke were the most influential of the New Enlightenment.

[7]Qing China also limited trade to only one port in south China, namely Canton (present day *Guangzhou*) in the province of *Guangdong*. See Spence (1990).

[8]Qing China was first defeated by Britain in the two Opium Wars (c.1839-1842 and 1856-1860) and subsequently by the Japanese in the Sino-Japanese War (c.1894-1895).

sending the country's best talents to study in Japan, may thus be regarded as representing a "clean" case for examining the role of ideology in the country's incipient experience of democratization.[9] Historical narrative suggests that sending them off to study in Japan had unwittingly heightened the desire to participate in politics among the overseas Chinese students, and stoked their dissatisfaction with the Manchu regime (Harrell, 1992; Spence, 1990; Zhang, 1969). Indeed, within merely two years, around 960 Chinese students in Japan joined the *Tongmenghui* (United League) – an anti-Qing political party founded by *Sun Yat-sen* in Tokyo in 1905 that subsequently became the largest party of this nature as their original members graduated and returned home to set up branches in many Chinese provinces. As a result, many riots erupted, which eventually culminated in the 1911 Revolution.

We collect data on the geographic origins of these overseas Chinese students in Japan during 1896-1911 to proxy for the impact of ideology. To overcome the potentially endogenous bias arising from unobserved local characteristics, we apply a spatial regression discontinuity design (RDD) to evaluate the causal effects of ideology on democratization. We do so by exploiting various steep mountain ranges that run from the north to the south of central China, which together form a natural barrier between the two sides. Given that the two ports of departure to Japan were both located on the eastern coastal seaboard (Huang, 1975; Figure 1), and owing to the extremely rugged terrain at the foot of these mountain ranges, those residing to the west of this natural barrier incurred significantly higher costs associated with traveling overland to the departure ports (Figure 2). Although this natural barrier has long existed in China and had always rendered overland transport costs prohibitive, it should leverage no effect on our outcome variables of interest before overseas studies in Japan became a trend. It was only after the exogenous shock of the First Sino-Japanese War fought in 1894-1895 and the Qing government's response of sending the country's finest to study in Japan that this natural barrier produces a differential spatial impact on our various outcome

[9]The Qing had undertaken a broad array of changes encompassing the development of industries, reform of the education system, formation of political parties, and not the least establishment of a provincial assembly of limited suffrage, among others.

variables of democratization.

[Figure 1 and 2 about here]

Overall, we find that having an additional overseas student in Japan possessing a qualification equivalent to senior high school or above can significantly account for a higher participation in democratic parties in a county, a greater representation of the county in the provincial assembly, and most interestingly, more frequent riots in the 1911 Revolution in that county, suggesting the distinct radicalizing effect of democratic ideology. Against the backdrop of China's monumental shift from its traditional, Confucian-based civil exam system to a modern education system emphasizing specialization in academic disciplines, we examine the effect of ideological shock on democratic political beliefs and engagement, and find that the effect was significant only for those who studied arts and social science but not the Western sciences, engineering, and medicine – the so-called "useful knowledge" in Mokyr's (2002) parlance. One possible reason for this is that the arts and social science subjects presumably familiarize students with the underlying principles and virtues of democracy, thereby predisposing them to participate more actively in politics, and even radicalizing their behavior in their fight for democracy.

In the context the finding of this radicalizing effect of ideology, we next examine whether radicalism could be tempered by human capital (measured by the level of education), the Confucian cultural norms, and economic stake, and find that all three had a moderating influence on ideology's radicalizing effect. For instance, we find that the effect of academic specialization is significant only for those with a lower level of education (specifically senior high school qualification); for those who were university educated, the effect of academic specialization on radicalism disappears, confirming the conjecture that the cost of political engagement, particularly rioting, is perhaps too high for those of upper-tail human capital (Campante and Chor, 2012a). Likewise, we find that Confucian norms – measured by whether one held a civil exam qualification before going to Japan – could significantly moderate violence among those studying arts and social sciences, confirming the powerful influence

of cultural norms on political behavior (Kung and Ma, 2014). Last, but not least, our finding that those having a financial stake in the economy (for example by owning a business) were also less engaged in rioting is consistent with Jha's (2015) observation regarding the positive effect of financial assets-holding on political attitude towards conflict.

Our work can be related to several bodies of literature in both economics and political science. First, by showing the causal effect of ideology on political behavior and engagement and accordingly institutional change, we contribute to the large literature that relates levels of development in general, and schooling in particular, to democratization (Bandiera et al., 2019; Barro, 1999, 2015; Campante and Chor, 2012a, 2012b; Easterlin, 1981; Friedman et al., 2016; Gleditsch and Choung, 2004; Lipset, 1959; Papaioannou and Siourounis, 2008). Most important perhaps is that our identification of a causal relationship between ideology and democracy complements, even goes one step beyond, Spilimbergo (2009), whose cross-country panel regressions inspiringly identify a strong correlation between the level of democracy in overseas students' home country and that in the host country where they are educated. And by examining the effect of modern academic specializations on political aspirations and actual behavior, our work complements the findings about how curriculum shapes ideology based on experimental evidence (Cantoni et al. (2017)).

Second, our finding that education level moderates the radicalizing effect of ideology contributes to an emerging literature that stresses the important role of upper-tail human capital in such fundamental economic transformations as the French Industrial Revolution (Mokyr, 2005; Squicciarini and Voigtländer, 2015, 2016; De la Croix, Doepke, and Mokyr, 2018), as well as providing systematic evidence to substantiate the claim in both sociology and political science that elites are important for institutional change (Parsons, 1960; Acemoglu and Robinson, 2008; Spilimbergo, 2009; Valdés, 1995).

Third, our identification of the radicalizing effect of ideology goes a long way toward addressing the important puzzle of why the right to vote may not always be extended and revolutions did occur in many instances (Acemoglu and Robinson, 2000, 2001; Aidt and

Franck, 2015)),[10] particularly when either the autocrat is too weak or the people too strongly committed to an ideological cause.[11] In the spirit of this literature, and given that democratization is often a complex process triggered by multiple forces and occurring through multiple channels, our story of ideology being an external stimulus of revolution provides an alternative channel to account for the democratization outcome in 1911 China that complements the reduced upward social mobility[12] (Campante and Chor, 2012b; Bai and Jia, 2016).[13]

The rest of the paper is organized as follows. In Section 2, we introduce the host of modernization measures and institutional changes undertaken by political elites in late Qing China in response to a series of exogenous war shocks, thereby providing a relevant context for making sense of the 1911 Chinese Revolution. Section 3 introduces the variables and various data sources, as well as explaining our empirical strategy and performing a number of tests related to exclusion restrictions and discontinuities as required of an RDD approach. Section 4 reports and discusses the empirical results, whereas Section 5 provides a brief conclusion.

[10] According to Acemoglu and Robinson (2000, 2001), democratization represents a rational response from the autocrats to a temporary threat of revolution, to the extent that revolution requires collective action that cannot always be organized. This theory finds empirical support in the context of the Great Reform Act of 1832, whereby the Swing riots staged by the poor English agricultural laborers had helped the reform-friendly Whigs Party in 1831 to win more seats than the Tory leadership who did not support any parliamentary reform at all (Aidt and Franck, 2015). However, it should be noted that democratization in this instance did not necessitate an institutional change – the parliament was already well established in England back then.

[11] Democratization can also occur in the absence of such threats, insofar as democracy is expected to bring forth the provision of such public goods as public health or mass education, which favor the elites indirectly (Galor and Moav, 2002; Lizzeri and Persico, 2004).

[12] The two explanations are highly complementary. For example, a pure ideological stimulus would unlikely be effective in the absence of mobility and other concerns. Likewise, if not for the catalyzing effect of ideology, reduced social mobility alone may require more time to yield collective action or result in the kind of rebellion similar in nature to those occurring prior to the 1911 Revolution, namely peasant revolts rather than an orchestrated effort of democratization.

[13] Campante and Chor (2012b) argue how an increasingly educated populace in a context of inadequate economic opportunities may have unwittingly undermined regime stability and paved the way for the Arab Spring.

2 Background

2.1 Exogenous War Shocks and Institutional Changes

By and large, democratic ideas began to diffuse in Qing China as a result of several exogenous war shocks, which eventually led not merely to attempts to catch up with the West in terms of military and technology, but, more importantly, fundamental reforms in such institutions as education and political system.

Initially, defeat by the British during the two Opium Wars (c.1839-1842 and 1856-1860) alerted the Middle Kingdom to its own weakness on military and technological fronts, a weakness that could nonetheless be easily remedied by importing modern technologies. That was precisely what the political elites at the time did. Under the rubric of a "self-strengthening movement", Qing China imported much of the technologies required for establishing shipyards and arsenals, and naval and military academies, and developed industry ranging from coal mines and cotton mills to iron and steel complexes, as well as basic infrastructure such as railway and telegraph to facilitate development – all of which was intended to invigorate the country's economic and military capabilities (see, e.g., Spence, 1990).

Only after its shocking defeat by the Japanese during the first Sino-Japanese War (c.1894-1895) despite building up allegedly the strongest navy in Asia did it dawn on China that mere adoption of foreign technologies was not sufficient for forging a strong empire. Defeat in this war was unthinkable for the Chinese because for centuries, they had considered Japan a small neighboring country and a humble student of Chinese culture, technology and political system. The defeat swiftly reversed the status quo, and confirmed that Japan had now clearly surpassed China as a political and military powerhouse, thanks to the *Meiji* Reform. To strengthen itself, China would need to undertake a similar reform – the late-Qing reform.

The reform began with education. For over a millennium, China's education was premised heavily on the ethos of the Confucius classics ((specifically the *Four Books* and *Five Classics*), a corpus of knowledge that, when stripped of its rhetoric, can be reduced to a disproportion-

ate emphasis on subordination to authority and social harmony. While this emphasis may help reduce conflict in a society, it may not be conducive to economic development, given the lack of practicality of this knowledge (Needham, 1969; Mokyr, 2002), and that a great many talents studied for the exam mostly for fame and fortune (Bai, 2019; Mokyr, 1992). It was against this backdrop that sweeping educational reforms were carried out in earnest. From 1901 onwards, the civil exam system was to be abolished and replaced by a modern university system undergirded by a Western curriculum. But as the know-how required for running these new types of schools was not available at the time, the Qing government decided to dispatch the country's best talents to Japan to acquire this know-how, resulting in what was the largest wave of overseas study in Chinese history.[14]

There were myriad reasons why Japan became the Qing government's first choice. The most important one is that Japan had managed to graft a constitutional structure on to the existing imperial system without overthrowing the imperial rule, which helped allay the Qing government's concern over regime stability.[15] Figure 3 shows the trend of Chinese students going to Japan for the period 1896 - 1911 (*zhongguo shixuehui*, 1957). The Qing government began to dispatch students to Japan as early as 1896 (the year immediately after the Sino-Japanese War), but the scale was rather modest. Momentum began to pick up during the educational reform (c.1901), with the number of students peaking in the year in which the civil exam was abolished (c.1905), before dropping off again.

[Figure 3 about here]

An important reason why the number of overseas Chinese students in Japan was modest before 1904 had to do with the fact that the majority were sponsored by the Qing government,

[14] *Lu Xun*, an eminent literary critic and novelist at the time, commented that in order to acquire new knowledge and to learn new ways of doing things, "*going abroad was the only remaining course*" (Harrell, 1992, p. 99).

[15] Clearly there were other reasons why Japan was the most preferred by the Qing government. First is the cultural affinity shared between the two countries in terms of language and philosophical underpinning (namely Confucianism). Second, geographical proximity made it easier to travel to Japan than to the U.S. or Europe. Last, the costs of studying in Japan were approximately one-fifth of those of studying either in Europe or the U.S..

who, with dwindled coffers were restricted to dispatching only the country's finest to enroll in such majors as law, education, and military for nation building. Upon returning to China, these students were obligated to teach in a school to which they had been assigned for one to five years, typically in their county or prefecture of birth.[16] But with the abolition of the civil exam, many jumped on the bandwagon even if they had to pay for it themselves, except a good majority were merely enrolled in short (month-long or even shorter), elementary courses run by the so-called "cram schools" or *sokuseihan* catering especially to this fad (Harrell, 1992; Shu, 1929; Futami and Sato, 1978). As expected, the trend did not last long, with the Qing government putting a brake on it just a year later. Thus, if we count only those students who graduated in Japan and possessing a qualification equivalent to senior high school or above, the number did not exceed 3,000 (2,831 to be precise) according to Saneto (1960) and Shen (1997).

2.2 Japan as "Treatment": the Rise of Democratic Sentiments

While the success of the *Meiji* reforms provided realistic hope for the Qing to modernize, it also served, unwittingly, as a source of inspiration and impetus for those seeking to democratize China's political system (of an absolute monarchy). The Qing's inability to deal with the Western powers on one hand, and its reluctance to embrace Western ideas on the other, appeared to have stoked the revolutionary sentiments.

The success of the *Meiji* reforms is attributable to the Japanese government's wholesale adoption of constitutional monarchy based on the West – most notably Britain and Germany, and perhaps also its embracement of Western ideas and "-isms". For instance, Japan translated more books on Western philosophy and ideas into their own language than did any other Asian country, and nowhere else in Asia were intellectuals allowed to give public lectures and engage in open discussions freely. In sharp contrast, while the same novel ideas may have been brought into China through the treaty ports, the Qing government was

[16] In each county there were typically tens of school districts, from which talents were drawn via concerted effort among governments at and above the county level (Qing Board of Education, 1906).

keen to suppress them to prevent social unrest, thus deterring their diffusion. Even during the Late Qing's Reform – a reform that was supposed to be comprehensive in scope and nature, the government suppressed voices that challenged its legitimacy. For instance, it shut down an influential newspaper, *Su Pao*, in *Shanghai* for criticizing the government, and arrested its founder and two journalists responsible for the alleged inflammatory remarks. However, since much of the criticism directed at the Qing government was actually grounded on its plain incompetence to prevent the Western powers from encroaching upon the Chinese economy (the so-called "sphere of influence" essentially allowed various Western powers to "carve up" its territory; see Figure I in Appendix A), the repressive approach taken by the government toward its own people who were simply trying to defend the national interest only served to further provoke them, which led to more organized efforts to bring down the government.[17] For example, in 1903, the Chinese students in Japan organized an anti-Russia volunteer army in protest of Russia's demand to annex Manchuria, but were decreed by the Qing government to dissolve said army. To the overseas Chinese students in Japan who witnessed these repressive acts by their own government, the only way forward for China was for them to bring the Qing government down.[18] Of course, we are not suggesting that exposure to foreign education was the only means through which, or the first time, anti-Qing sentiments were bred. Many conflicts rooted in anti-Qing sentiments had erupted long before the 1900s, with the *Taiping* Rebellion being the largest of them all, but these conflicts were not conceived to transform the absolute monarchy into a democratic republic or even a constitutional monarchy.

[17]The failed revolt led by *Tang Caichang* along the Yangtze coast (in the south) in 1900 represents a good example of a movement orchestrated to bring down the Qing early on.

[18]This sentiment might have been strengthened by the modernity exuded by *Meiji* Japan, which was reflected in the orderliness of its urban planning vis-à-vis the shanty town outlook of even the most urbanized cities in China – *Shanghai* and *Beijing*. For example, *Chiol*, a student from *Shanghai*, made no attempt to mask his prejudices: *"On the one side [Japan], under a peculiar but eminently practical form of municipal self-government, has risen within the last four decades a busy, thriving, well-drained, well-ordered, well-lighted city, with an excellent supply of water, with spacious promenades... which have enabled it to become one of the greatest shipping centers of the world and the greatest emporium of trade in the Far East. On the other side, under the blight of Mandarin misrule, the ancient native city is slowly rotting away in the decrepitude and sloth of its palsied old age..."*.

In any event, what eventually transpired was the birth of political parties pushing for democratic development in China. While these parties differed in their outlook and their approach, there was no doubt that democracy was to be the goal. Between the two major democratic parties, the revolutionary party (*Geming pai*) subscribed to the view that revolution is essential to achieving democracy. During the infancy of the *Tongmenghui* (United Association) in 1905-06, which was the largest of such a revolutionary group, an overwhelming majority (85%) of the members were overseas Chinese students in Japan. In contrast, the constitutional party (*Lixian Pai*) believed in the peaceful transition to a constitutional monarchy. Taken together, nearly two-thirds (65%) of all the members of these two democratic parties had studied in Japan, and upon returning to China they expanded the membership of their parties substantially and became deeply involved in spreading democracy via an extensive political repertoire. Having orchestrated some 67 anti-Qing riots prior to the famous 1911 *Wuchang* Uprising,[19] these overseas students played a pivotal role in the 1911 *Xinhai* Revolution, including the establishment of a provincial assembly of limited suffrage in 1909 shortly before the fall of the Qing Empire.[20]

While it was preceded by many revolts and uprisings against the Qing government, the 1911 Revolution, which occurred on October 12 of 1911, is considered to be the turning point. The several hundred revolts that ensued eventually culminated in the great majority of prefectures declaring independence from the Qing state. With 14 out of 18 provinces having declared independence, the Republic of China was eventually established on February 12, 1912, thus ending the 2,000-year-long dynastic rule.

[19]The 10 most famous of these riots were organized by *Sun Yat-sen* (1866-1925), who later became the first president of the Republic of China.

[20]They fell short of creating a national assembly despite having petitioned three times in 1910 (Esherick (2012)).

3 Empirical Strategy

3.1 Variables Definition and Data Sources

To measure ideology's effect on democratization, we employ the number of overseas Chinese students in Japan to be our independent variable. However, we are unable to include every single one of them, as those who went there only briefly (say for less than a year) and failed to obtain a qualification equivalent to senior high school – were not officially enumerated.[21] According to the Chinese Ministry of Education (1907), up to 60% of some 7000 Chinese students in Japan were enrolled in short-term or cram courses, and $5-6\%$ of them had withdrawn their studies before completion; only $3-4\%$ studied at the specialized schools whose qualification was commensurate with a university degree, with slightly over 1% attending university (Table I in Appendix B).[22] Our choice of using the qualification of senior high school as a cut-off point is not arbitrary. Indeed, in 1904 the Qing government passed a regulation allowing a certified senior high school qualification from Japan to be converted to a *juren* qualification – one level above a *shengyuan* (licentiate, the entry level) under the traditional civil exam system, with guaranteed employment in the government.[23] To the extent that abolition of the civil exam hindered social mobility of the would-be elites – specifically the *shengyuan*, our use of the qualification of senior high school as cut-off mitigates the concern that reduced social mobility might have sparked off uprisings (Campante and Chor, 2012b; Bai and Jia, 2016).

Data on overseas Japanese students are obtained from three separate sources. The first is *Qingguo liuxue sheng huiguan baogao*, Vol. 1-5 (Administrative Report on Qing Overseas

[21] We are not too concerned about the omission of this group of students, as they are likely reflected in the *shengyuan* quota – a variable that controls for the variation in social mobility of the would-be elites, or specifically those with the lowest level of traditional civil exam attainment.

[22] After eleven years of compulsory education, one could attain a senior high school qualification (equivalent to "sixth form college") by studying for three additional years. A university education required three more years of study. Alternatively, one may choose to pursue a professional degree such as law, agriculture, and commerce at a specialized college instead of obtaining a general university education (Ministry of Education, Science and Culture (*Monbusho*), [1886]).

[23] Regulations Governing Awards Conversion for Graduates Studying Abroad [1904].

Students in Japan), compiled by the Qing Ministry of Supervision based in Tokyo. The reports enumerates every registered student in any Japanese school (regardless of the program's duration) during the early 1898-1905 period. A student's name, birthplace, year of registration, sponsorship, and the registered school are all contained therein. Altogether there were 5,312 overseas students enrolled in Japan in this period. We obtain our second set of data from the Japanese Government's Education Bureau entitled *Nihon ryugaku Chuka Minkoku jinmeishira, dai 1,2,3-kan* (A Survey Report of Chinese Overseas Students in Japan). This source contains complete information on all the Chinese students who had ever graduated from the officially certified universities and specialized colleges up until 1934. For the pertinent period of 1898-1911, there were a total of 4,712 graduates, and detailed personal information such as the student's name, birthplace, major and year of graduation is available for 2,992 of them. Our third source of data is *Kaoyan chuyang biyesheng zhangcheng* (Records of Overseas Students in Japan), which is collected by the archival office of Academia Historica (*Guoshi guan*) in Taiwan. Different from the other two sources, this information was required by the provincial government to be collected during the short window of 1907-1911. This source provides the personal particulars of up to 3,911 outgoing overseas students including their names, birthplaces, year(s) of registration, and the corresponding major(s) in all the schools at which they had attended. Together, these three data sources provide the most detailed official information on 3,343 qualified overseas Chinese students in Japan for our period of interest, who on average spent 4.24 years there and enrolled in three different schools. This official information includes their name, gender, birthplace (county), year of registration and graduation (for every school attended), nature of sponsorship, area of specialization, and highest degree attained. Figure II of Appendix A provides an example of our data sources. Figure 4 shows the geographic distribution of these students by birthplace origin at the county level.

[Figure 4 about here]

Using birthplace origin to proxy for the place of uprising may raise concerns, to the extent

that overseas students may not necessarily return to the county where they were born. It should not be a major problem, however, because the government-sponsored students, which made up 63% of our sample, were obligated to fulfill their duties and teach in the specialized schools run by their county or prefectural government. Given the close correlation between education and socioeconomic status in late imperial China, it is perhaps safe to conclude that the remaining 37% self-financed students in Japan were by and large representative of the classically educated, wealthy and privileged elites. [24] And with 70% or so of these students coming from the affluent provinces of China (*Zhili* in the north, and *Jiangsu* and *Zhejiang* in the east), this group of presumably the most upwardly mobile students would almost certainly have returned to where they came from, especially as social networks are important for orchestrating uprisings (Averill, Esherick, and Perry, 2006; Schoppa, 1998; Galbiati, 1985; Marks, 1984). As a broad gauge, the fact that distinctly more overseas Chinese students in Japan had come from the provinces of *Hunan* and *Hubei* in the central region – the two provinces in which the 1911 Uprising first reared its head – coalesces well with our claim.

Table 1 provides a detailed breakdown of the characteristics of these students by demographics (age and place of origin), nature of sponsorship, majors pursued, level of qualifications attained, and so forth. Most overseas students were sponsored by the Qing government, although many of such sponsorships were decentralized to the provinces (Panel B). Panel C provides a detailed breakdown on the distribution of disciplines pursued by these students (percentages in parentheses). A good majority of these students had already earned a qualification in the traditional civil exam system before going abroad (62.58%).[25] The subjects that they studied were diverse, ranging from arts and social sciences (law, politics, education, and Economics) to physical sciences (Math, physics, chemistry and agriculture),

[24] The *Japan Weekly Mail* commented on the students in Japan in 1901:"It is said that 400 Chinese students are about to come to Japan. They are called "students" but many are already office-holders... Many of them were the children of the study tour participants sent by the Qing government to Japan before, and most of them were from scholar-official families..."

[25] 70.71% of them were above the age of 30 (panel A). However, not everyone in the same age cohort would have attained the same civil exam degree.

engineering, and medicine.[26] Also, some – especially those who did not have a traditional civil exam qualification – went to the military academy.[27] Upon graduation, the majority, 58.96%, earned a qualification of senior high school, while 27.64% and 13.40% achieved a university and a postgraduate (master's or doctoral) degree, respectively (Panel D). Finally, in panels E we show the difference among these students in terms of whether they had a business upon returning to China.

[Table 1 about here]

Participation and representation in democratic institutions and processes are the two fundamental pillars of democracy. We thus employ party membership in one of the two major democratic parties at the time – the revolutionary party (*Geming pai*) and constitutional party (*Lixian Pai*), and representation in the 1912 provincial assembly to be our first two dependent variables. The 1912 provincial assembly election was considered important as it attracted the participation of over 300 civic groups and was the first popular election and the only one to have ever occurred in Chinese history. We obtain the list of party membership of the revolutionary party (*Geming pai*) and the constitutional party (*Lixian Pai*) from *Zhongguo jindaishi ziliao congkan* (Collection of Materials on Modern Chinese History), edited by *zhongguo shixuehui* (1957). Figure 5 shows the spatial distribution of the membership of these two parties at the county level. Figure 6 shows the geographic distribution of the provincial assemblymen, the data for which is obtained from Zhang's (2008) *Zhongguo mingzhu zhengzhi de kunjing, 1909-1949* (The Predicament of Democracy in China, 1909-1949). Finally, we obtain the data on the 1911 riots from 1,962 county gazetteers (Wu, 2019). Figure 7 shows the geographic distribution of the 1911 Uprising, where the red dots refer to the counties that had witnessed at least one uprising. Combined, these three measures constitute both the process and outcome of democratization as experienced during

[26] The percentages of those who already had a traditional education and those who did not, who then studied the arts and social sciences in Japan were not all that different (77.44% vs. 67.15%). The situation is similar for those who majored in science, engineering, and medicine (14.39% vs. 8.39%).

[27] A significantly larger percentage of those who did not have a traditional civil exam qualification, however (24.46% vs. 8.17%), went to the military academy.

the 1911 Chinese Revolution. The summary statistics of these key variables are provided in Table 2.

[Figures 5, 6 and 7 and Table 2 about here]

3.2 Identification Strategy

An obvious concern regarding our empirical setup is that the geographic distribution of the number of Chinese students studying in Japan is likely endogenous to a variety of unobserved local (county) characteristics. To address this concern, we employ a spatial regression discontinuity design (RDD) using a natural boundary formed by various conjoined mountain ranges. From north to south they are the Greater Khingan, *Taihang*, *Wushan*, and *Xuefeng* Mountain Ranges straddling Central China.[28]

Our identification strategy is motivated by two historical facts. First, there were only two assigned ports from which to travel to Japan and they were both located on the east coast – *Zhifu* in the north and *Shanghai* in the south (refer to Figure 1). Regardless of where they resided, students who wanted to go and study in Japan had to travel to their nearest port on the east coast. Second, overland transport cost was much higher than the cost of traveling to Japan in general, and higher still for those residing further away from the coast. Taking a steamer to Tokyo was affordable at a mere 15 *taels* of silver on the cheapest route, which is equivalent to the annual income of a poor sharecropper at the time (refer to Table II in Appendix B). However, overland transport was much more costly, particularly for those residing to the west of a barrier formed by various conjoined mountain ranges in central

[28]The *Greater Khingan* Range is a volcanic mountain range located in the Inner Mongolia region of Northeast China and extends roughly 1,200 kilometers from northeast to southwest, whereas the *Xuefeng* Mountains are a mountain range located in western *Hunan* – a province in southcentral China. Lying in between are *Taihang* and *Wu* Gorge. The *Taihang* Mountains are a Chinese mountain range running down the eastern edge of the Loess Plateau in *Shanxi*, *Henan* and *Hebei* provinces. The range extends over 400 kilometers from north to south and has an average elevation of 1,500 to 2,000 meters. *Wu* Gorge is the second gorge of the Three Gorges system on the *Yangtze* River in the People's Republic of China. Formed by the *Wu* River, it stretches 45km from *Wushan* to *Guandukou*, and is located downstream of *Qutang* Gorge and upstream of *Xiling* Gorge (Institute of Geographic Sciences and Natural Resources, Chinese Academy of Sciences).

China that stretch a long way from north to south. We illustrate the costliness of traveling overland from west of the barrier with the *Taihang* Mountain range in north China to the east coast. The *Taihang* Mountain is so steep that, across its entire 400-kilometer stretch from north to south the Chinese had only been able to carve out eight passes (refer to Figure III in Appendix A). While the linear distance from *Yuncheng* (a city to the west of the range) to *Luoyang* (a city to the east of the range) is a mere 89 miles, the actual travel distance is 142 miles on one of the nearest routes and 189 miles on the other (refer to Figure IV in Appendix A). A back-of-the-envelope calculation suggests that overland transport within China could easily cost up to 1.8 *taels* per mile.[29] Hence, crossing the mountain would have required one to pay an additional 180 *taels* of silver, which is around ten times the annual income of a sharecropper. The disproportionately higher total traveling cost to Japan for students residing to the west of the boundary than for those residing to the east is evidenced by the vast difference in travel stipend paid by the Qing government to the students it sponsored – 200 *taels* of silver for someone originating from the southwest, vis-à-vis 400 for those who had to cross the mountain range from the northwest (Chen and Tian, 2006; *Dagong bao*, July 24, 1902). To the extent that the sharply varying costs of inland transportation to the ports of departure to Japan are a key determinant of the geographic distribution of overseas Chinese students, employing a spatial RDD to evaluate the effects of ideology on democratization is justified (Figure 8).[30]

[Figure 8 about here]

One concern for using a natural boundary for identification is that the boundary has always existed, so why did it demonstrate an effect only at that particular point in time?

[29] Based on *The Diary of Zeng Guofan*, a governor-general and the son of an "educated landowner" in late Qing dynasty, he had to borrow up to 1,500 *taels* of silver in 1835 to travel from *Hunan* to *Beijing* to take the civil exam. The linear distance from *Hunan* to *Beijing* is around 843 miles. So the average cost of overland transport for one mile was at least 1.8 *taels*.

[30] Our strategy is further supported by the fact that the Qing government had since 1906 stopped paying the overseas students a travel stipend on account of its dwindling state coffers. While a stipend had been provided from 1902 to 1906, the number of overseas students was few and far between. Hence, the self-sponsored students were not the only ones affected by the costs of travel. The government-sponsored ones had to pay a hefty price, too.

The answer is that our variables of interest represent an endogenous response on the part of the Qing government to the exogenous war shocks mentioned earlier. Before Qing China was forced to open up for trade and other purposes by the Western powers, it seldom interacted with the outside world by dint of its closed-door policy since 1757, with limited trade operating only via the port city of Canton. It was not until the defeat at the hands of the Japanese in 1895 that the Qing government began to send students to study in Japan, at which point the effect of the natural boundary became an important determinant of the geographic distribution of overseas students in Japan.[31]

Another concern is that the natural barrier might have resulted in different cultures and norms for the communities residing on the two sides, thereby affecting the attitudes toward sending students abroad. However, we should point out that since ancient times, the original inhabitants were Han on both sides in terms of ethnicity, sharing basically the same philosophy, folklore, and importantly language. The equally fertile plateaus on the two sides had contributed in more or less equal measure to the development of early Chinese civilization due to their favorable natural conditions. Furthermore, while the cost of overland transport in imperial China had always been prohibitive, it would not significantly affect our outcome variables of interest prior to the exogenous war shocks that Qing China experienced and its endogenous response of sending its talents to study in Japan. In other words, only when geography and exogenous war shocks interact with one another would the costliness of overland transport produce a significant effect on our economic outcomes in a manner resembling that hypothesized in Nunn and Puga (2012).

[31] Certainly some students had been sent to study in the United States earlier, but it was rare.

3.3 Empirical Setup

Based on the above identification strategy we set up our empirical estimations following a structure resembling that in Dell (2010), and Dell, Lane, and Querubin (2018):

$$OverseasStd_c = \alpha + \gamma MLine_c + f(Geolocation_c) + \sum_{i=1}^{20} Seg_c^i + \epsilon_c \quad (1)$$

$$Outcome_c = \alpha + \gamma \hat{Overseas}Std_c + f(Geolocation_c) + \sum_{i=1}^{20} Seg_c^i + \epsilon_c \quad (2)$$

where $Outcome_c$ denotes the three outcome variables of interest in county c, namely participation in a democratic party and in uprising, and representation in provincial assembly, $OverseasStd_c$ is the cumulative number of overseas students returning from Japan in county c, and $MLine_c$ is an indicator variable that equals to 1 if county c is located on the east side of the boundary, and 0 otherwise. $f(Geolocation_c)$ is the multidimensional regression discontinuity (RD) polynomial controlling for the smooth functions of geographic location. For the baseline estimation we use a linear, two-dimensional specification in latitude and longitude, and check its robustness to a wide variety of RD polynomials (Gelman and Imbens, 2014).[32] We also split the boundary into segments of 100km each; segment i of county c (Seg_c^i) is coded as 1 if county c is closest to segment i, and 0 otherwise. Doing so enables us to compare the counties across the same segment of the boundary. Furthermore, we show in Appendix B that our results are robust to the choice of segment length such as 150km and 200km (Table III and Table IV in Appendix B).

In Equation (1), the boundary is also used as an instrumental variable for identifying its exogenous effect on the geographic distribution of overseas Chinese students in Japan, whereas in Equation (2) we substitute in the predicted number of overseas students to estimate the three outcome variables of interest. To ensure that our data are balanced and that our estimation is robust, we employ a bandwidth of 200, 100, or 50km on either side

[32] Results are available upon request

of the boundary in the baseline estimation. To check robustness, we also use additional bandwidths of 150km and 250km, and the results are reported in Table V in Appendix B.

3.3.1 Balance Checks

To satisfy the requirements of using the spatial RDD, we need to ensure that all relevant factors other than the treatment vary smoothly on the two sides of the boundary. To proxy for their effects, altogether we have five sets of controls and a number of measures: initial geographic conditions, initial economic conditions, initial human capital conditions, Western economic influence, and "violence tradition" (Rowe, 2014).

Geography

It is now well rehearsed that geography or its interactions with exogenous shocks are likely to have a significant effect on economic outcomes (Sachs, 2001; Nunn and Puga, 2012). We measure geographic conditions by ruggedness, slope, elevation, major navigable rivers, direct distance to the coast, and the Qing's designated courier route, all of which would have had the potential to affect the cost of commuting to the two designated seaports of *Shanghai* and *Zhifu*.[33] The terrain ruggedness index is constructed by calculating the difference in elevation between adjacent cell grids (5km*5km) in ArcGIS using data provided by the United States Geographic Service (USGS).[34] For each county, the distance to the closest major navigable rivers (viz. the Yellow River and the *Yangtze* River) and the distance to courier routes are calculated in ArcGIS. We report our balance checks in Table I and Figure I in Appendix C. As we can see, none of the results are statistically significant between counties on either side of the boundary for all three bandwidths.

Initial Economic Conditions

According to proponents of "modernization theory", the level of development is likely to have

[33]The elevation of a geographic location refers to its height above sea level, whereas slope measures the degree of inclination relative to the elevation.

[34]The Digital Elevation Model (DEM) typically projects 90 square-meter cell grids onto a map of the entire earth surface.

an effect on democratization (Lipset, 1959).[35] We control for its possible effect using such conventional proxies as agricultural (caloric) suitability, population density, and urbanization rate. The caloric suitability index was constructed by calculating the difference between adjacent cell grids (5km*5km) in ArcGIS based on Galor and Özak (2016),[36] whereas average population density and urbanization rate during 1880-1910 are gathered from Cao (2006). Reported in Table II and Figure II in Appendix C, once again we do not find any significant difference in these measures between counties located on either side of the boundary for the three specified bandwidths.

Western Economic Influence

China since the 1840s had been widely exposed to multiple influences from the West, ranging from the development of modern business institutions to the diffusion of Christianity.[37] *Ceteris paribus*, we thus expect counties that were more thoroughly exposed to Western thoughts and practices to have been more heavily influenced by their associated ideologies, especially democratic consciousness. To measure this influence we include *treaty ports* (using the cumulative number of treaty ports in a prefecture as proxy),[38] *foreign firms banks* (using their cumulative number including their branches in a prefecture as proxy),[39] *missionary density* (using the number of missionaries per 10,000 people in a prefecture as proxy),[40] and *railway* (using the number of railway lines passing through a prefecture as proxy). Table III and Figure III in Appendix C report the balance checks of Western economic influence. Consistent with the previous results, we find no significant difference in these variables between the counties on either side of the boundary for all specified bandwidths.

[35] Its actual effect is mixed, however, according to Geddes (2007). While Boix (2003) find a positive relationship between the two, Przeworski et al. (2000b) contend that development merely stabilizes democracy.

[36] Obtained from https://ozak.github.io/Caloric-Suitability-Index/.

[37] According to Spence (1990), the missionaries brought a new spectrum of knowledge and worldviews to the Chinese. For a measurable impact of the Protestants on China's economic prosperity in early 20th-century China, see Bai and Kung (2015).

[38] Data on treaty ports are obtained from Zhang (1993).

[39] Data on foreign firms and banks are collected from Huang and Yu (1995) and the *Yearbook of National Banks [1934]* in The People's Bank of China (1999), respectively

[40] Data on the missionaries are borrowed from Stauffer, Wong, and Tewksbury (1922).

Human Capital Endowments

The trend to study overseas is likely affected by the prevailing level of human capital endowments; other things held constant, a better endowed county would likely send more students overseas. We proxy for human capital endowments in late Qing China using two measures. First, following Chen, Kung, and Ma (2019), we employ *jinshi* density to measure the endowment of traditional human capital. *Jinshi* is the highest level of attainment in the civil exam system and its density is calculated by the number of *jinshi* in a prefecture normalized by its population.[41] Second, we use the number of universities per 10,000 people (university density) as our second proxy. Data on the universities are based on *Diyici jiaoyu tongji tubiao: Guangxu sanshisan nian fen* (The First Education Statistical Yearbook of China, 1907). Additionally, we also control for the *shengyuan* quota apportioned to each county and normalized by its population, given its possible effect on social mobility (Bai and Jia, 2016). The results of these exclusion restrictions tests are reported in Table IV and Figure IV in Appendix C. Once again we find no statistical significance in all three measures.

Violence Tradition

Finally, to rule out the concern that the 1911 Revolution might simply have been a continuation of past revolts, we control for what Rowe (2014) calls "violence tradition". Specifically, we control for the frequency of civil conflicts as they occurred before 1898 and specifically those aimed at overthrowing the Qing regime (anti-Qing conflict) in each county for the same period. The data are collected from various county gazetteers by Wu (2019). We report the results of these two measures in Table V and Figure V in Appendix C. Once again we find no significant difference based on the same specifications as above.

[41] Data limitations preclude us from using the county as the level of analysis for this variable, however. The *jinshi* data are obtained from Zhu and Xie (1980)'s *Ming-Qing jinshi timing beilu suoyin* (Official Directory of Ming-Qing Civil Exam Graduates), which contains a complete list of all the 46,908 jinshi who sat a combined 242 civil exams that took place between 1371 and 1904 (a period of just over 500 years) across 278 Chinese historical prefectures.

3.3.2 Discontinuity of the Key Variables of Interest

In contrast, it is necessary that both our dependent and independent variables exhibit a sharp jump from one side of the boundary to the other, and we do find that to be the case; all coefficients are statistically significant between counties on either side of the boundary for all three bandwidths (Tables 4a and 4b). We plot these discontinuities in Figure 9. While we have employed a number of bandwidths, we only report the results using the 400km one to make sure that the jump applies to an area twice as wide as that in our widest bandwidth estimation. Panel A shows the discontinuity in our explanatory variable, viz., overseas students in Japan, whereas panels B through D the discontinuities in our three measures of democratization. The dots represent the bins that group together counties of similar distance to the boundary in relation to the variable distribution.

[Table 3, 4 and Figure 9 about here]

4 Empirical Results

4.1 Baseline Estimates

Table 5 reports the results of our baseline estimates. Panel A reports the results without adding any controls (the preferred specification), whereas panel B includes the range of controls discussed earlier. We control for the segment fixed effects and cluster the standard errors at the segment level. We do not take natural logarithm so that the result can be interpreted simply as the "level" effect of having an additional student i from county c on the particular outcome variables in that county.

Columns (1)-(3) report the results regarding overseas Chinese students' participation in democratic parties, columns (4)-(6) democratic representation in provincial assembly, and columns (7)-(9) their participation in a county's uprising. By and large, ideology has a significant effect on the overseas students' political participation and representation – the coefficients on the first two measures of democratization estimated using different bandwidths

are significant at either the 1% or 5% level. In terms of magnitude, a county with an additional overseas student in Japan had more people joining the democratic parties (0.311) and an even greater representation in the provincial assembly (0.896). Likewise, ideology also has a radicalizing effect on people's behavior – counties with more returning overseas students also saw more riots during the 1911 Revolution (0.694).

[Table 5 about here]

Given that we have made use of less than half of all the counties (720 out of 1544) in the spatial RD analysis, external validity poses a concern. To address this concern, we conduct a difference-in-differences (DID) analysis comparing counties with and without overseas students with respect to our three dependent variables using the full sample of 1,544 counties. The corresponding coefficients of 0.341, 0.478, and 0.577 are significant at the 1% level, which are consistent with those of the spatial RD.

Some students may have had a penchant for revolution even before they went to Japan. To test this more formally, we regress the three variables of political engagement on whether the government-sponsored students were studying in a military academy in Japan. The rationale behind using military students comes from the historical evidence that the Qing government had taken precautionary measures to prevent students with revolutionary tendency to enroll in a military academy, as the 1902 *Sejio* Incident – where two suspicious students were prohibited from doing so – aptly demonstrates. Since then, the Qing government had prohibited all self-sponsored students from pursuing a program in military, and that was before it even became popular for anyone to study abroad. Furthermore, for those sponsored by the state, the Qing government exercised care to limit the quota to just 100 per year for the entire country, and set an exceptionally high bar for selection that began all the way from primary education (Shu, 1929).[42]

Reporting the results in Table VI in Appendix B, we find that the military students were

[42] Acceptance rate was an extraordinarily low 1% at the army primary school, and only slightly more than a third of its graduates were allowed to go on to army secondary school.

just as eager for political engagement as their non-military counterparts – the coefficients on joining a democratic party (columns (1)-(3)) and representing in the provincial assembly (columns (4)-(6)) were significantly positive (albeit with a smaller magnitude), suggesting that both groups were equally influenced by ideology. Moreover, the military students were indeed more involved in rioting than their non-military counterparts (columns (7)-(9)), clearly because of their access to weaponry consistent with the historian's narrative.[43]

4.2 From Civil Exam to Modern Education – Heterogeneous Effect of Academic Specialization

Education reform was a cornerstone of the Late Qing Reform, as the millennia-old civil exam was to be replaced by a modern education emphasizing specialization in academic disciplines. Given this major paradigm shift, we examine the effect of ideological shock on democracy. An intuitive approach is to group the disciplines of arts, social sciences (law, politics, education, and economics), and business studies into a single broad category, and science, applied sciences and engineering, and medicine into another, under the assumption that the impact of ideology is likely different according to one's major, and that the arts and social science subjects likely entail more democratic ideals.

Table 6 reports the results. The first key finding is that ideology can indeed be shaped by what one studies. Students of arts and social sciences, for example, did exhibit a significantly positive difference from those of the science subjects in all aspects of political engagement. The science and engineering students were not only more impervious to politics than their non-science counterparts in terms joining a political party (columns (1)-(3)) or representing in the provincial assembly (columns (4)-(6)), but also in terms of participating in social and political movements (columns (7)-(9)). A particularly interesting finding pertains to the radicalizing effect of ideology. While Table 6 shows that the overseas students were more

[43]Evidence suggests that, with few exceptions (*Shanghai* and the two southern provinces of *Guangdong* and *Guangxi*), the 1911 Chinese Revolution was crucially staged by junior military officers of the New Army (e.g., Zhang, 1969).

radical across the board, this radicalism is intimately associated with only those who studied arts and social sciences – subjects that may cultivate democratic values in students.

[Table 6 about here]

Here a potential selection bias exists in that some students may have already had a penchant for democratization even before they went to Japan, which, if so, might affect their radical disposition via choice of major. Evidence, however, suggests that this is unlikely a serious issue for at least the government-sponsored students (who made up approximately 63% of our sample), as their majors were unilaterally decided by their sponsors in relation to their work responsibilities. For instance, in 1904 the Qing government established an academy for the *jinshi* scholars, from whom 20 were dispatched to study law in Japan.[44] Similarly, at the regional level different provinces sent their students to study different subjects, apparently also depending on their perceived needs at the time. For instance, in *Yunnan* province students were sent to study military (c.1902), for *Shanxi* (c.1902) and *Hubei* provinces (c.1904) it was law and education, whereas for *Hunan* province it was education and military (c.1903), and natural sciences in the case of *Zhili* province (c.1904).[45]

To test this more formally, we decompose the effects of ideology by whether an overseas student was sponsored by the government. To the extent that the government-sponsored students were unable to choose their majors as freely as their self-financed counterparts, and to the extent that self-selection into democratic beliefs and radical behavior is correlated with the choice of major, we would expect the self-sponsored students to exhibit greater radicalism than those sent by the government. Reported in Table VII in Appendix B, the conjecture of a biased selection is not supported. By and large, the government-sponsored students were distinctly more enthusiastic about both joining a democratic party and staging riots; and, when the dust had finally settled they were also marginally more representative in constitutional democracy (in terms of magnitude) than the self-financed students.

[44] *Dagong Bao*, November 22, 1904.

[45] Chen and Tian (2006), p.14; Zhang (2002), p.189; *Dagong Bao*, October 14 and November 28, 1904.

4.3 The Radicalizing Effect of Ideology

Does Human Capital Moderate Radicalism?

While average schooling may enhance the appreciation of, and desire for, democracy, evidence suggests that, perhaps due to the high opportunity cost of political participation for the more educated, political engagement is less responsive to schooling in countries with a higher skill premium (Campante and Chor, 2012a). To test whether radicalism would be tempered by years of schooling or educational attainment, we regress rioting (1911 Revolution) on academic specialization, by splitting the sample into those with a university degree or above or what may be considered "upper-tail human capital" (Squicciarini and Voigtländer, 2016), and those who graduated senior high school only.[46]

The results are reported in Table 7. We can see that, for those who held a university degree or above, academic specialization had no effect on radicalism, confirming the conjecture that the cost of political engagement, particularly in rioting, is likely too high for those with upper-tail human capital (columns (1)-(3)). But for those who only graduated senior high school, academic specialization remained a crucial determinant of radicalism (columns (4)-(6)). Combined, these findings are suggestive of a possible inverted U-shaped relationship between radicalism bred by ideology on the one hand and educational level on the other. Put differently, while increased schooling would heighten democracy, beyond a certain threshold the relationship would begin to reverse, presumably because political engagement is costlier for the more educated.

[Table 7 about here]

Do Cultural Norms Moderate Radicalism?

Culture and norms are powerful determinants of individual behavior. Owing to their "slow

[46]The majority (nearly 59%) were senior high school graduates, about 28% obtained a baccalaureate degree or similar (professional) qualification, and 13% a master's or doctoral degree (refer to Table 1).

moving" nature, their effects can persist over long periods of time (Alesina, Giuliano, and Nunn, 2013; Voigtländer and Voth, 2012; Nunn and Wantchekon, 2011, among others). By virtue of its millennia-long existence, China's traditional civil exam had nurtured a Confucian culture of stressing subordination and loyalty – of sons to fathers, subjects to the emperor, and so on, so much so that counties characterized by stronger Confucian norms (in a northeastern province where Confucius was born) systematically exhibited less conflicts in historical China when hit by weather shocks (Kung and Ma, 2014). A natural question then is whether overseas Chinese students with a Confucian educational background may behave any differently from their counterparts without this background, in particular whether it may moderate political radicalism.

Indeed, the Chinese students who went to Japan were far from homogeneous in their educational background. Many (62.58%) had studied under the Confucian-based civil exam and obtained an associated qualification (refer to Table 1). Table 8 reports the results of this exercise. In regressing the incidence of riots on academic specialization we split the sample into those with and those without qualifications in the traditional civil exam. A striking finding is that, counties with more of those returning overseas students who studied arts and social sciences possessing the civil exam qualification were significantly less involved in riots during the 1911 Revolution. The pertinent coefficient is not only smaller (0.357 vs. 0.54) but also less significant (5% vs. 1%) (compare columns (1)-(3) and columns (4)-(6)), confirming the moderating effect of cultural norms on political behavior. Another striking finding is that, regardless of whether one had been indoctrinated in Confucianism, academic specialization remained a crucial determinant of radicalism (row (1)), confirming our previous conjecture that ideology can be shaped by what one studied.

[Table 8 about here]

4.4 Role of Economic Interest

The hypothesis that market exposure affects attitudes toward conflict can be dated back to at least Montesquieu (1748), who stated that: "*Commerce is a cure for the most destructive prejudices; it is almost a general rule that wherever the ways of man are gentle, there is commerce; and wherever there is commerce, there the ways of men are gentle.*" In essence, an individual who holds a certain stake in the economy would evaluate the costs and benefits of conflicts carefully and is more likely to support peace initiatives (Jha, 2015; Jha and Shayo, 2019; Blattman and Miguel, 2010; Eckstein and Tsiddon, 2004). From this perspective, we conjecture that overseas students with a stake in the economy after returning to China would exhibit different behaviors than those without a stake in their stride for democracy. We proxy for economic stake by company ownership, the data for which are obtained from Huang and Yu (1995), whereas *Zhonghua Minguo yuan nian di yi ci nonggongshang tongji biao* (the First Industrial and Commercial Survey Report of the Republican Government) supplements our measure through its enumeration of membership of the chamber of commerce.

Reported in Table 9, the results are strikingly similar to those of human capital. First, no significant difference in democratic participation is found (in both level and magnitude) irrespective of whether one had a stake in the economy or not (columns (1)-(3)). But those with a stake in the economy were more representative in the provincial assembly – a difference significant in level and with a magnitude twice as large (columns (4)-(6)). However, this particular group of stakeholders was significantly less involved in rioting. For those who did not own a business, the pertinent coefficient is 0.723 and significant at the 1% level. But for those who did have a business, the coefficient is less than half (0.338), and significant at only the 10% level (columns (7)-(9)).

[Table 9 about here]

5 Conclusion

Using the Chinese 1911 Revolution as example, and specifically the number of overseas students in Japan to proxy for the influence of ideology, we demonstrated the importance of ideology – which served as a channel of education – in shaping what may be considered the first democratic revolution in China as measured by three specific political outcomes. We examined these outcomes given the monumental shift in China's education system to an emphasis on academic specialization. We find that these outcomes did diverge between those who studied arts and social sciences in Japan and those who majored in science, medicine, and engineering. The radicalizing effect of ideology represents a particularly interesting finding that contributes significantly to explaining why ideology and revolution often go hand in hand. Against this finding, we further show that this radicalizing effect of ideology could in fact be moderated by levels of educational attainment, Confucian norms, and business interest.

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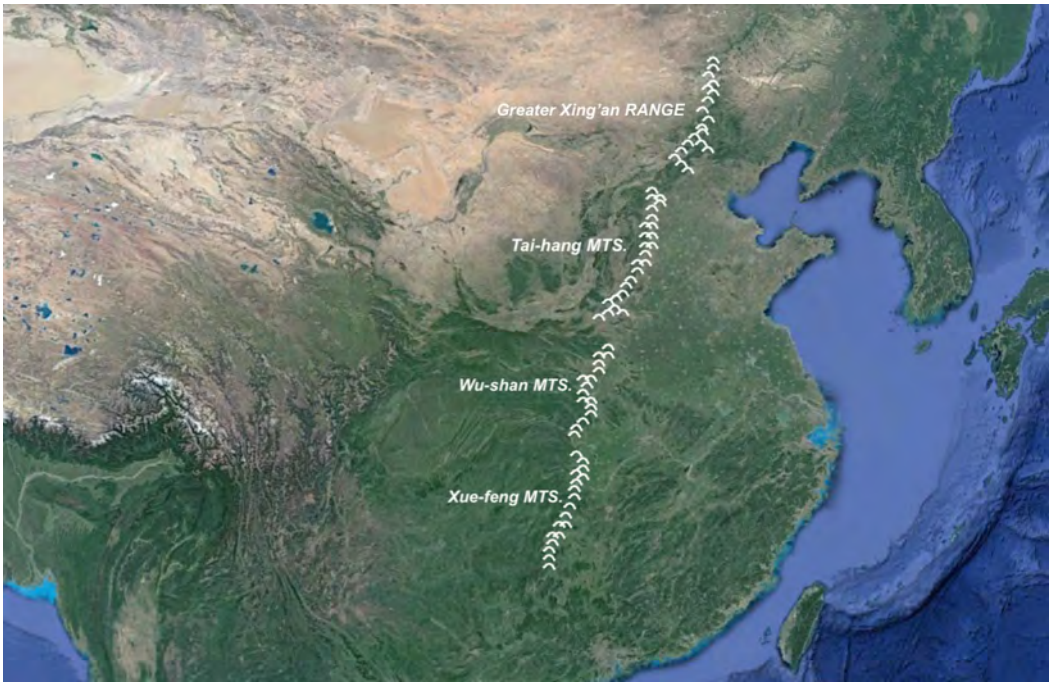
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Figure 1. Locations of Designated ports to Japan and Major Rivers in China



Figure 2: Natural Boundary Formed by Various Conjoined Mountain Ranges in China



Source: Institute of Geographic Sciences and Natural Resources, Chinese Academy of Sciences

Figure 3. Number of Outgoing Students to Japan, 1896-1911

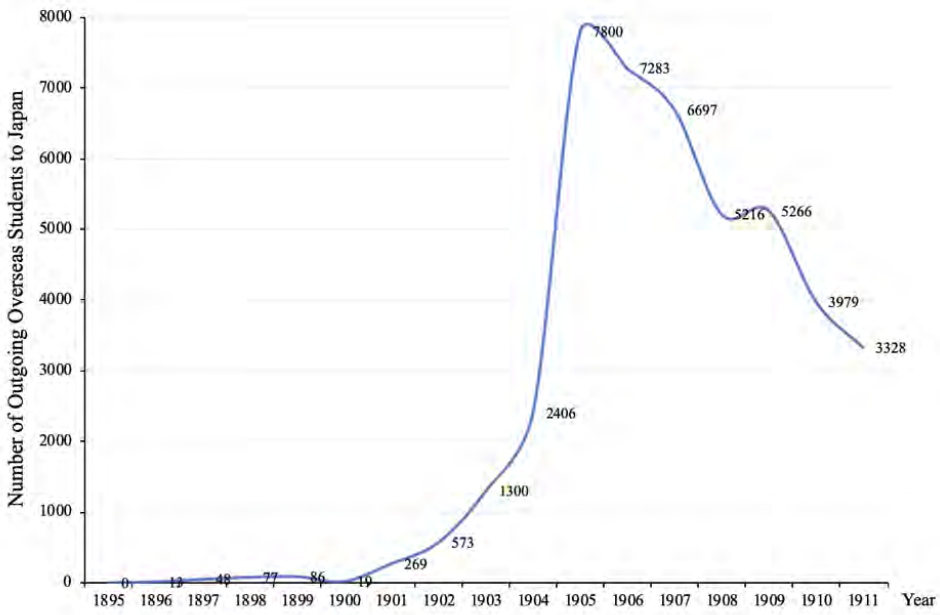


Figure 4. Spatial Distribution of the Origins of Outgoing Students to Japan

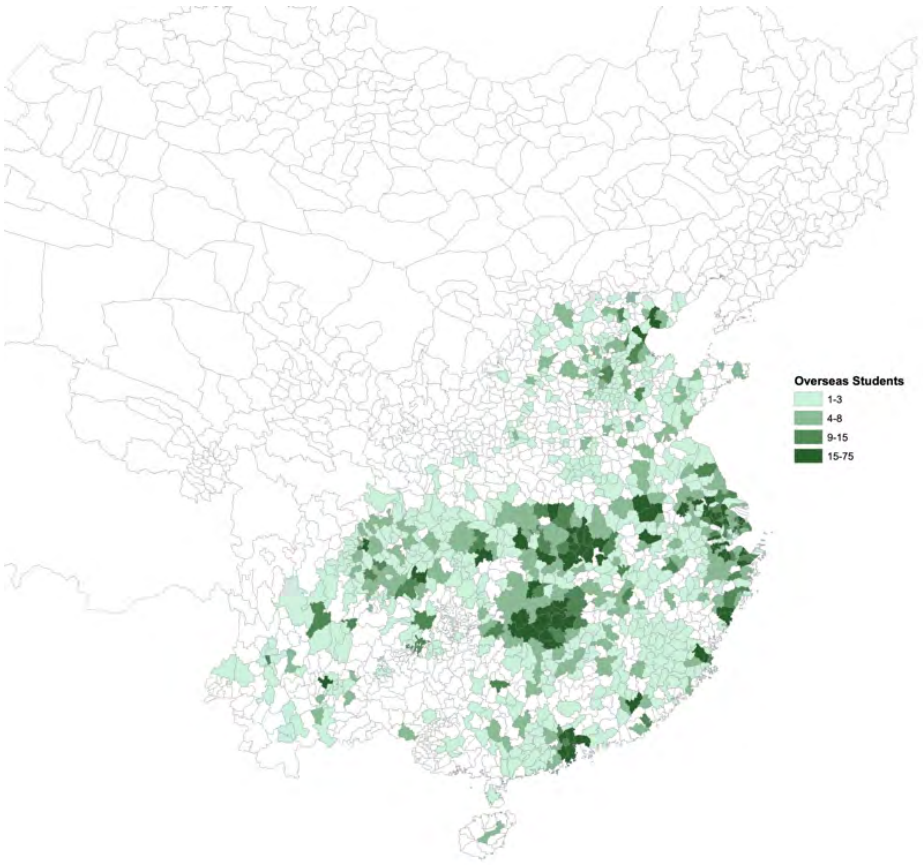


Figure 5. Spatial Distribution of Democratic Party Membership



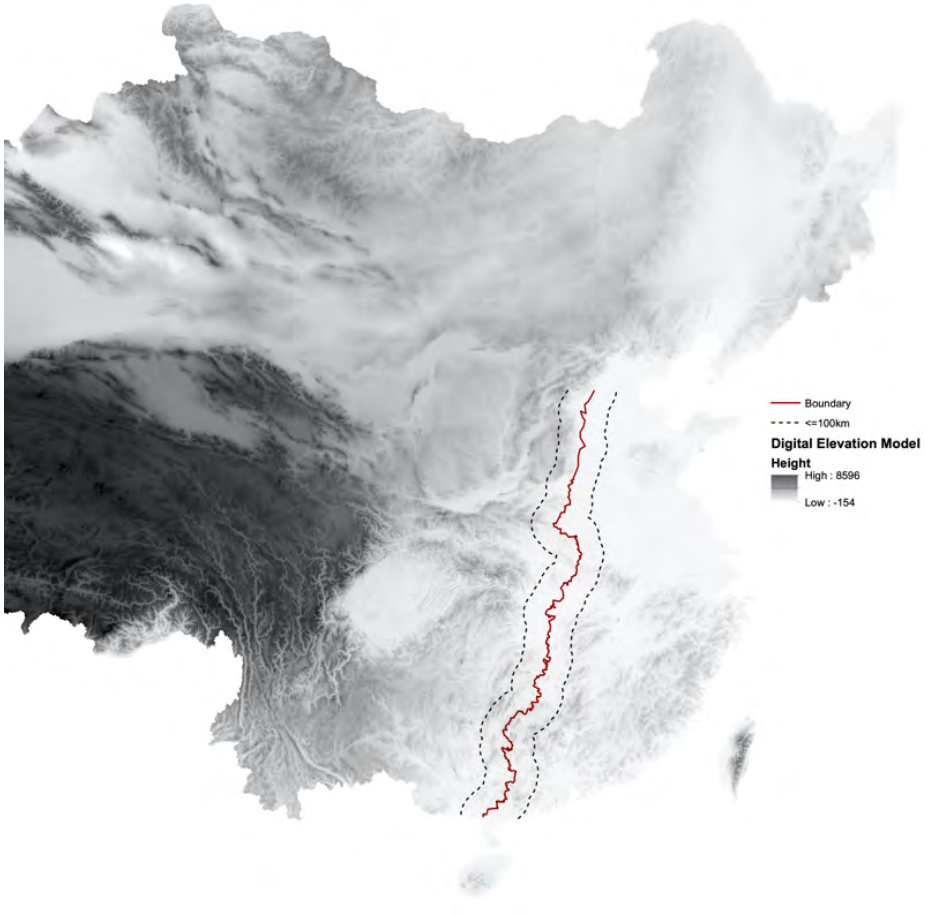
Figure 6: Spatial Distribution of the 1911 Revolution



Figure 7: Spatial Distribution of Provincial Assemblymen



Figure 8: Boundary for Regression Discontinuity Design (RDD)



Source: ArcGIS and Institute of Geographic Sciences and Natural Resources, Chinese Academy of Sciences

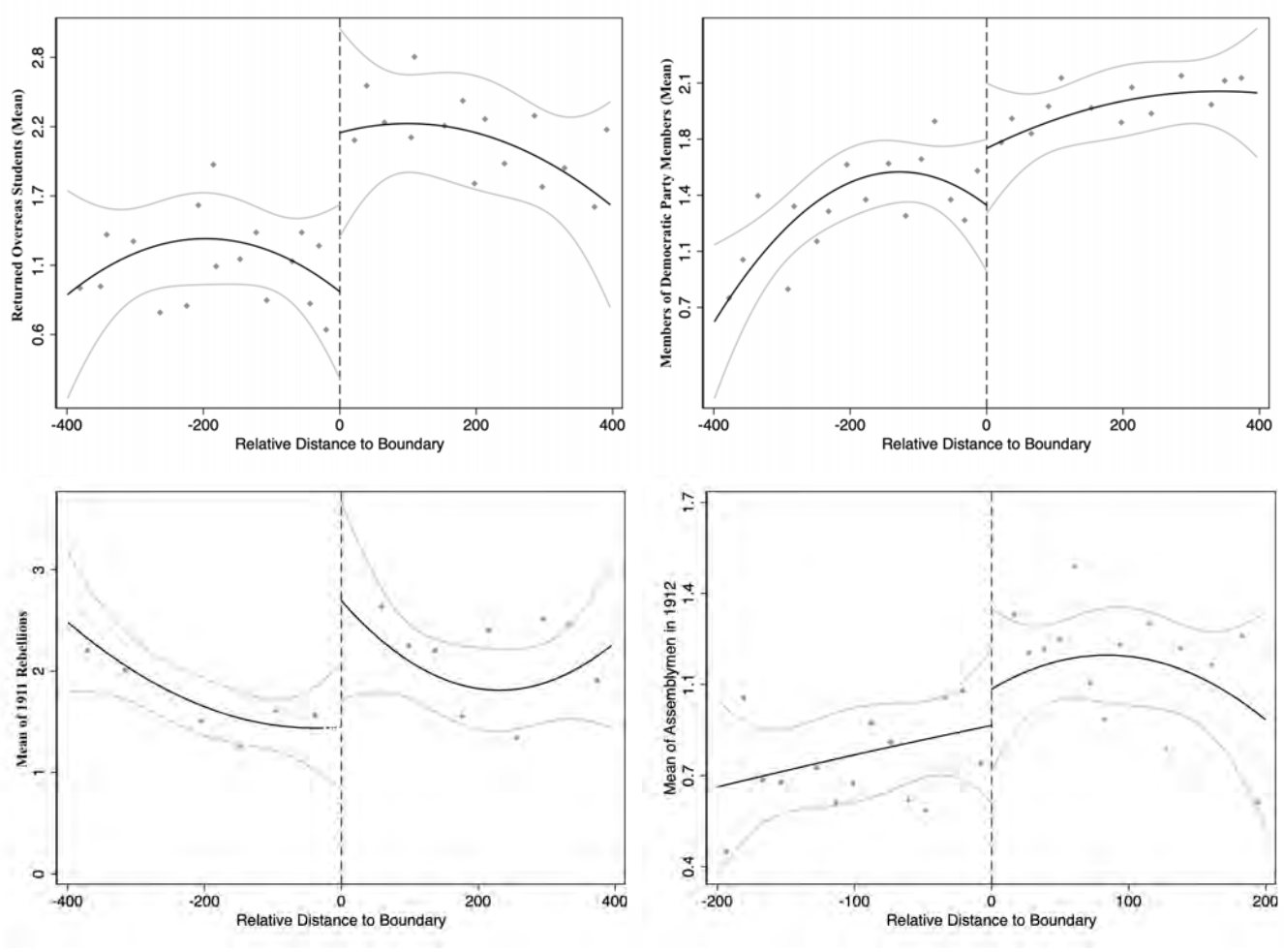


Figure 9: Regression Discontinuity Plots

Table 1. Characteristics of Overseas Chinese Students in Japan

Variable: Overseas Students	Number	Percentage
Panel A: Demographic Characteristics		
Age below 30	950	28.41%
Age between 30 and 50	2364	70.71%
Age above 50	29	3.48%
Northern China (birthplace north of the Yangtze River)	1490	44.47%
Southern China (birthplace south of the Yangtze River)	1853	55.53%
Panel B: Sponsorship		
Government-sponsored	2097	62.73%
Self-financed	1246	37.27%
Panel C: Contents of Education		
With Traditional Education Qualifications	2092	62.58%
Without Traditional Education Qualifications	1251	37.42%
Arts and Social Science & Business	2151	64.34%
Sciences & Engineering and Applied Sciences & Medicine	715	21.29%
Military	477	14.27%
Panel D: Level of Education		
with Equivalent Master's or Doctoral Degree	448	13.40%
with Equivalent University Degree /Professional Diploma	924	27.64%
with Equivalent Associate Degree (above High School)	1971	58.96%
Panel E: Economic Interest		
With Economic Stake	989	29.58%
Without Economic Stake	2354	70.42%

Note: The underlying data are from *Qingguo liuxue sheng huiguan baogao, Vol. 1-5* (Administrative Report on Qing Overseas Students in Japan), *Nihon ryugaku Chuka Minkoku jinmeishira, dai 1,2,3-kan* (A Survey Report of Chinese Overseas Students in Japan), and *Kaoyan chuyang biyesheng zhangcheng* (Records of Overseas Students in Japan)

Table 2. Summary Statistics of Variables, by County

Variables	**Number**	**Min.**	**Max.**	**Std. Dev.**
Overseas Students	3343	0	58	5.312
Government-sponsored	2097	0	11	0.902
Self-financed	1246	0	43	2.648
With Traditional Education	2092	0	19	1.02
Majoring in Arts and Social Sciences & Business	2151	0	35	2.114
Majoring in Sciences & Engineering and Applied Sciences & Medicine	715	0	7	0.881
Majoring in Military	477	0	10	1.375
Without Traditional Education	1251	0	26	2.081
With Economic stake	989	0	11	3.668
Without Economic stake	2354	0	47	0.911
Democratic Party Membership	1665	0	26	2.081
Revolutionaries	1337	0	25	0.614
Constitutionalists	328	0	8	1.878
Number of Revolts	277	0	5	0.442
Provincial Assemblymen	1560	0	7	1.02

Note: The underlying data are from *Qingguo liuxue sheng huiguan baogao, Vol. 1-5* (Administrative Report on Qing Overseas Students in Japan), *Nihon ryugaku Chuka Minkoku jinmeishira, dai 1,2,3-kan* (A Survey Report of Chinese Overseas Students in Japan), and *Kaoyan chuyang biyesheng zhangcheng* (Records of Overseas Students in Japan)

Table 3. Discontinuities: Overseas Students, by County

	Direct Distance to Coast			**Actual Travel Distance to Coast**			**Overseas Students**		
	$\leq$ 200km	$\leq$ 100km	$\leq$ 50km	$\leq$ 200km	$\leq$ 100km	$\leq$ 50km	$\leq$ 200km	$\leq$ 100km	$\leq$ 50km
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
MLine	0.174	0.171	0.162	-0.302***	-0.336***	-0.225*	0.313**	0.336**	0.254*
	(0.115)	(0.117)	(0.116)	(0.112)	(0.110)	(0.117)	(0.136)	(0.134)	(0.139)
Segment F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y
Segment Clustering	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	720	368	105	720	368	105	720	368	105

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Robust standard error in parentheses. Constant added but not reported.

Table 4. Discontinuities: Measures of Democratization

	Democratic Parties			**Assemblymen**			**1911 Revolution**		
	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
MLine	0.289**	0.277**	0.241**	0.187**	0.246***	0.233**	0.379***	0.349***	0.332***
	(0.139)	(0.140)	(0.139)	(0.095)	(0.0993)	(0.103)	(0.167)	(0.172)	(0.173)
Segment F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y
Segment Clustering	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	720	368	105	720	368	105	720	368	105

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Robust standard error in parentheses. Constant added but not reported.

Table 5. RD+IV: Overseas Students and Democratization, by County

	Democratic Parties			**Assemblymen**			**1911 Revolution**		
	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Without Controls									
Estimated Overseas Students	0.311***	0.223**	0.424***	0.896***	1.081***	1.362***	0.694***	1.132**	1.190**
	(0.116)	(0.113)	(0.119)	(0.165)	(0.170)	(0.167)	(0.116)	(0.158)	(0.155)
Panel B: With Additional Controls									
Estimated Overseas Students	0.386***	0.315***	0.431***	1.221***	0.938***	1.608***	0.672***	1.065**	1.206**
	(0.121)	(0.149)	(0.139)	(0.156)	(0.172)	(0.176)	(0.156)	(0.199)	(0.162)
Segment F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y
Segment Clustering	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	720	368	105	720	368	105	720	368	105

Note: The additional controls include all control variables mentioned in section 3.3; * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Robust standard error in parentheses. Constant added but not reported.

Table 6. Effect of Academic Specialization, by County

	Democratic Parties			**Assemblymen**			**1911 Revolution**		
	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Variable: *Estimated* Overseas Students									
Arts and Social Science & Business & Education	0.388***	0.396***	0.317**	0.488***	0.494***	0.497**	0.453***	0.489***	0.488***
	(0.143)	(0.148)	(0.150)	(0.141)	(0.152)	(0.158)	(0.140)	(0.153)	(0.155)
Sciences & Engineering and Applied Sciences & Medicine	0.208	0.333	0.205	0.157	0.171	0.180	0.159	0.152	0.181
	(0.169)	(0.203)	(0.205)	(0.171)	(0.217)	(0.220)	(0.170)	(0.205)	(0.206)
All Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
Segment F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y
Segment Clustering	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	720	368	105	720	368	105	720	368	105

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Robust standard error in parentheses. Constant added but not reported.

Table 7(a). Role of Educational Level, by County

	1911 Revolution		
	≤200km	≤100km	≤50km
	(1)	(2)	(3)
Variable: *Estimated* Overseas Students			
Equivalent Master's or Doctoral Degree	0.101	0.143	0.138
	(0.199)	(0.225)	(0.231)
Equivalent University Degree /Professional Diploma	0.412	0.414*	0.417*
	(0.237)	(0.242)	(0.243)
Equivalent Senior High School	0.494***	0.774***	0.725***
	(0.211)	(0.293)	(0.302)
All Controls	Y	Y	Y
Segment F.E.	Y	Y	Y
Segment Clustering	Y	Y	Y
Observations	720	368	105

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.
Robust standard error in parentheses. Constant added but not reported.

Table 7(b). Effects of Specialization vs. Educational Level, by County

	1911 Revolution					
	Sub-sample: With University Degree or above			*Sub-sample:* With Senior High School Qualification		
	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km
	(1)	(2)	(3)	(4)	(5)	(6)
Variable: Estimated Overseas Students						
Arts and Social Science & Business	0.288	0.286	0.297	0.475***	0.478***	0.438**
	(0.213)	(0.228)	(0.222)	(0.185)	(0.188)	(0.189)
Sciences & Engineering and Applied Sciences & Medicine	0.108	0.133	0.125	0.321*	0.339*	0.319
	(0.242)	(0.243)	(0.243)	(0.190)	(0.199)	(0.198)
All Controls	Y	Y	Y	Y	Y	Y
Segment F.E.	Y	Y	Y	Y	Y	Y
Segment Clustering	Y	Y	Y	Y	Y	Y
Observations	720	368	105	720	368	105

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Robust standard error in parentheses. Constant added but not reported.

Table 8(a). Role of Confucian Norms, by County

	1911 Revolution		
	≤200km	≤100km	≤50km
	(1)	(2)	(3)
Variable: *Estimated* Democratic Elites			
With Traditional Education	0.357**	0.310**	0.323*
	(0.147)	(0.153)	(0.166)
Without Traditional Education	0.742***	0.768***	0.997***
	(0.207)	(0.289)	(0.284)
All Controls	Y	Y	Y
Segment F.E.	Y	Y	Y
Segment Clustering	Y	Y	Y
Observations	720	368	105

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.
Robust standard error in parentheses. Constant added but not reported.

Table 8(b). Effects of Specialization vs. Cultural Norms, by County

	1911 Revolution					
	Sub-sample: With Civil Exam Qualification			*Sub-sample:* Without Civil Exam Qualification		
	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km
	(1)	(2)	(3)	(4)	(5)	(6)
Variable: Estimated Overseas Students						
Arts and Social Science & Business	0.357**	0.370**	0.363**	0.540***	0.562***	0.577***
	(0.177)	(0.179)	(0.180)	(0.157)	(0.164)	(0.166)
Sciences & Engineering and Applied Sciences & Medicine	0.200	0.250	0.257	0.257	0.310	0.323
	(0.227)	(0.253)	(0.256)	(0.245)	(0.260)	(0.261)
All Controls	Y	Y	Y	Y	Y	Y
Segment F.E.	Y	Y	Y	Y	Y	Y
Segment Clustering	Y	Y	Y	Y	Y	Y
Observations	720	368	105	720	368	105

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Robust standard error in parentheses. Constant added but not reported.

Table 9. Role of Economic Interest, by County

	Democratic Parties			**Assemblymen**			**1911 Revolution**		
	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Variable: *Estimated* Overseas Students									
With Own Business	0.352**	0.423***	0.446**	0.825***	0.926***	0.844***	0.338*	0.404*	0.388
	(0.173)	(0.162)	(0.192)	(0.197)	(0.198)	(0.192)	(0.178)	(0.210)	(0.209)
Without Own Business	0.331**	0.427***	0.396**	0.405**	0.452**	0.402**	0.723***	0.908***	0.868***
	(0.162)	(0.163)	(0.195)	(0.201)	(0.213)	(0.232)	(0.218)	(0.233)	(0.225)
All Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
Segment F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y
Segment Clustering	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	720	368	105	720	368	105	720	368	105

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Robust standard error in parentheses. Constant added but not reported.

Appendix A





Figure I (a). Sphere of Influence (from ArcGIS)

Figure I (b). A French political cartoon in 1898, titled "*China – The Cake of Kings And of Emperors*"

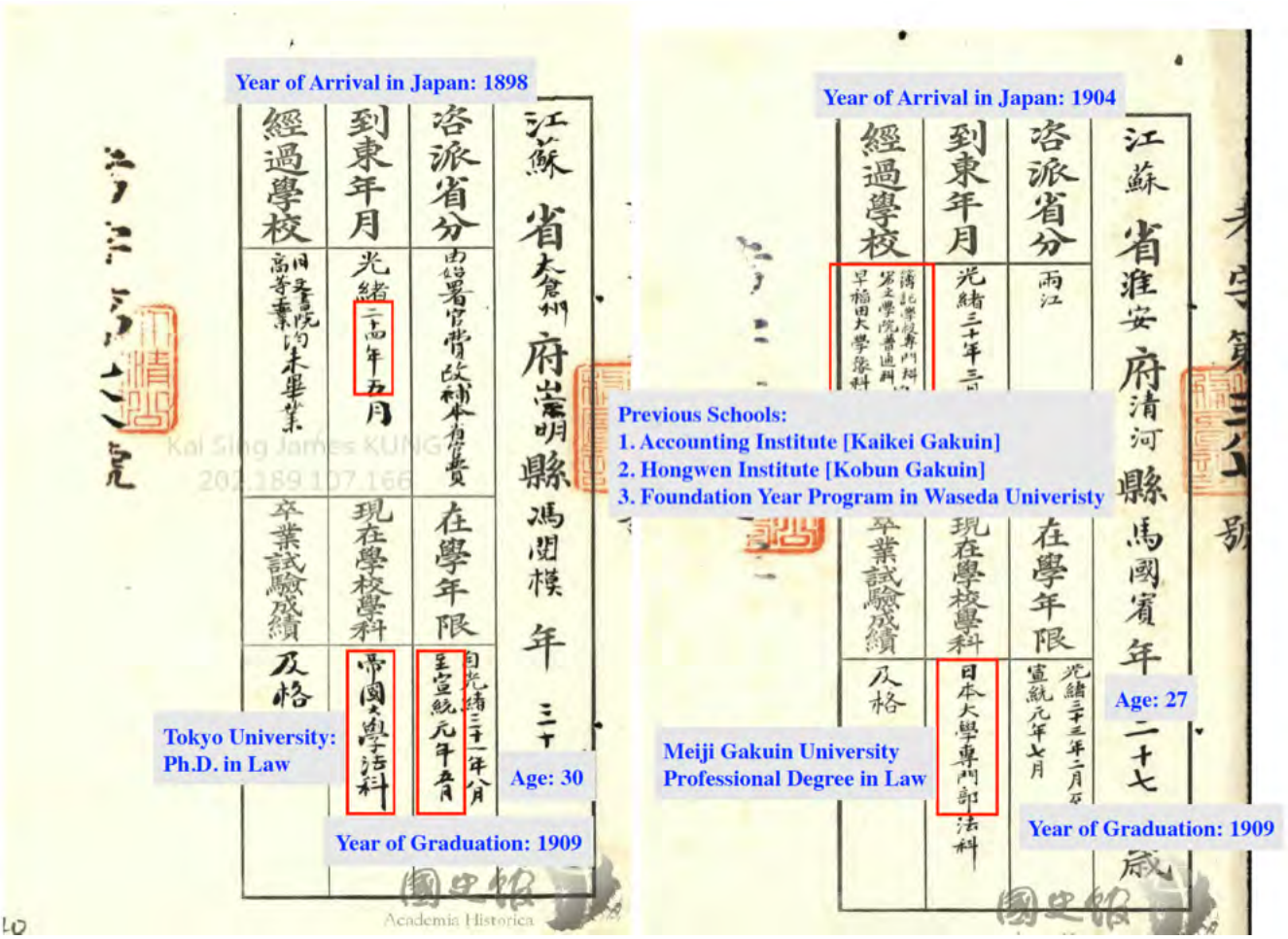


Figure II: Examples of Data Sources on Overseas Students in Japan

Source: *Kaoyan chuyang biyesheng zhangcheng* (Records of Overseas Students in Japan)

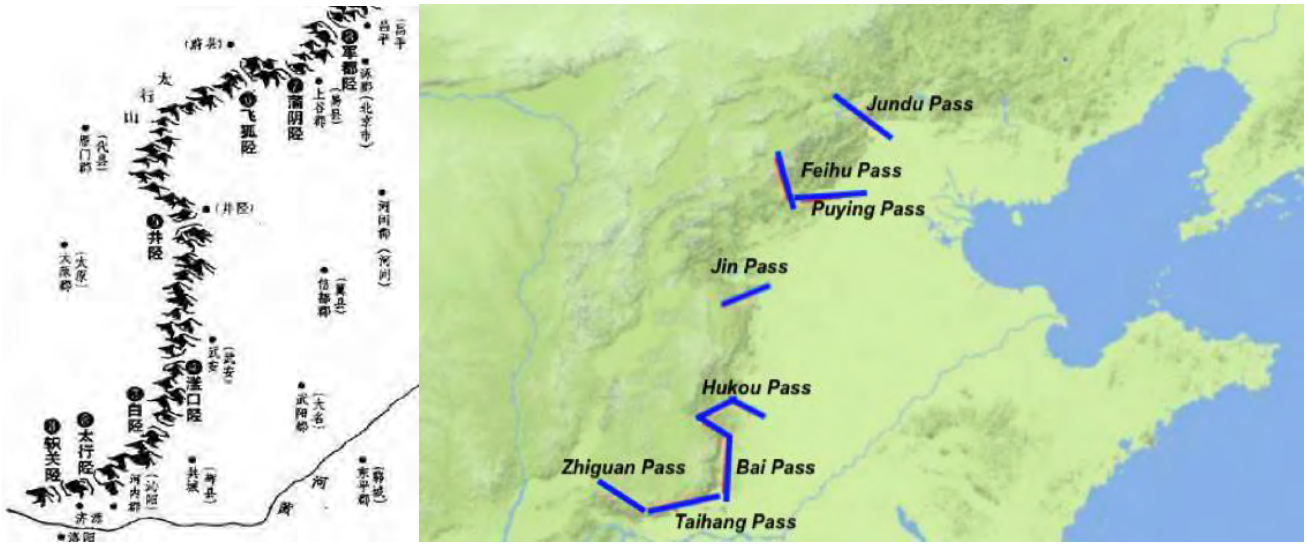


Figure III: Eight Passes of the *Taihang* Mountain Range

Source: *Dushi Fangyu Jiyao* (Essence of Historical Geography or Essentials of Geography for Reading History) by Qing dynasty geographer *Gu Zuyu*, between 1630 and 1660.

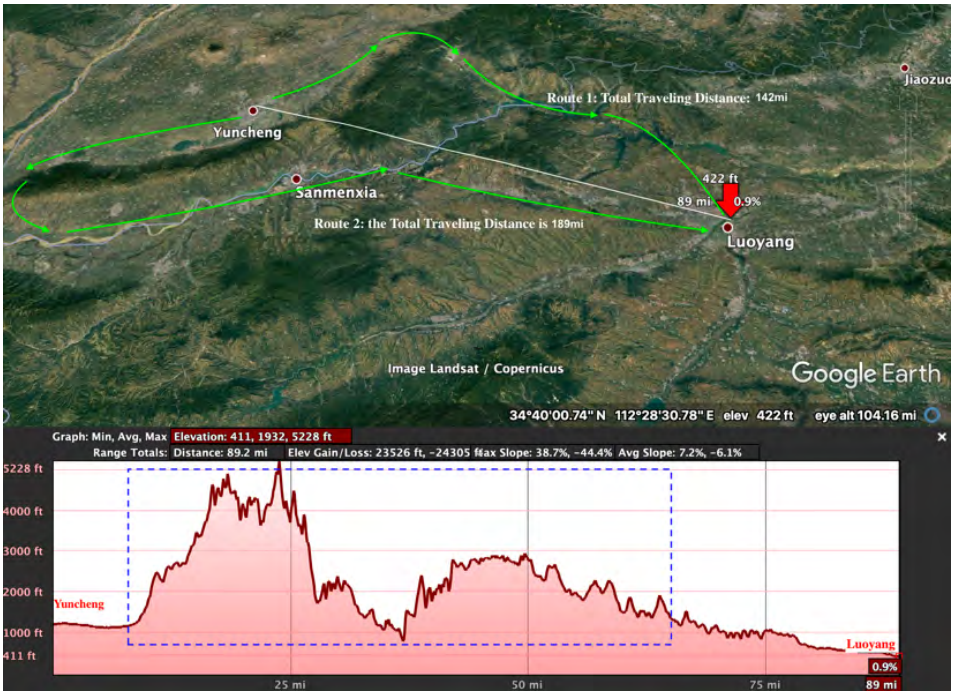


Figure IV: One Example of How to Go from *Yuncheng* to *Luoyang*

Source: from Google Earth Pro

Appendix B

Table I: *Meiji* Education System in Japan

Class	**School**	**Granted Title from Qing Government**	**Our Dataset**
Year 1			
Year 2			
Year 3	**Elementary School**		
Year 4	(Junior School)		
Year 5			
Year 6			
Year 7			
Year 8			
Year 9	**Junior High School**	***Gongsheng***	
Year 10	(Secondary School)		
Year 11			
Year 12			Yes
Year 13	**Senior High School or Specialized School**	***Juren***	Yes
Year 14	(Sixth form college)		Yes
First Year			Yes
Second Year	**University or Specialized College**	***Jinshi***	Yes
Third Year			Yes
Postgraduate	**University**	***Hanlin***	Yes

Table II. Ticket Price of Steam Ship to Japan

	1st Class	2nd Class	3rd Class
Port of Departure: *Shanghai*			
Shanghai to *Kobe*	38.57	23.57	8.57
Kobe to *Tokyo*	8.57	5	2.86
Shanghai to *Yokohama*	30	18.57	7.14
Yokohama to *Tokyo*	0.68	0.4	0.23
Port of Departure: *Zhifu* (*Yantai*)			
Zhifu to *Kobe*	46.42	32.14	12.85
Kobe to *Tokyo*	8.57	5	2.86

Note: The underlying data are from Huang (1975)

Table III. Robustness Check II: Different Lengths of Bandwidth – 150km & 250km

	Democratic Parties		**Assemblymen**		**1911 Revolution**	
	250km	150km	250km	150km	250km	150km
	(1)	(2)	(3)	(4)	(5)	(6)
Estimated Overseas Students	0.531**	0.517**	0.809***	0.907***	0.813***	1.115***
	(0.239)	(0.235)	(0.334)	(0.338)	(0.335)	(0.353)
Segment F.E.	Y	Y	Y	Y	Y	Y
Segment Clustering	Y	Y	Y	Y	Y	Y
Observations	720	368	105	105	105	105

Note: * p<0.05; ** p<0.01; *** p<0.001. Robust standard error in parentheses. Constant added but not reported.

Table IV. Robustness Check I: Different Length of Segment – 150km

	Democratic Parties			**Assemblymen**			**1911 Revolution**		
	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Estimated Overseas Students	0.271**	0.290**	0.287**	0.907***	1.115***	0.813***	0.526**	0.814***	0.911***
	(0.147)	(0.135)	(0.124)	(0.338)	(0.353)	(0.335)	(0.311)	(0.335)	(0.341)
Segment F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y
Segment Clustering	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	720	368	105	105	105	105	105	105	105

Note: * p<0.05; ** p<0.01; *** p<0.001. Robust standard error in parentheses. Constant added but not reported.

Table V. Robustness Check I: Different Length of Segment – 200km

	Democratic Parties			**Assemblymen**			**1911 Revolution**		
	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Estimated Overseas Students	0.283**	0.565***	0.548**	0.637***	0.911***	1.121***	0.554***	0.735***	0.771***
	(0.128)	(0.235)	(0.261)	(0.203)	(0.341)	(0.351)	(0.253)	(0.260)	(0.298)
Segment F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y
Segment Clustering	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	720	368	105	105	105	105	105	105	105

Note: * p<0.05; ** p<0.01; *** p<0.001. Robust standard error in parentheses. Constant added but not reported.

Table VI. Robustness Check: Self-selection Concerns, by County

	Democratic Parties			**Assemblymen**			**1911 Revolution**		
	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Estimated Military Overseas Students	0.312**	0.476***	0.334**	0.399**	0.418***	0.432**	0.733***	0.899***	0.868**
	(0.152)	(0.163)	(0.165)	(0.159)	(0.161)	(0.169)	(0.178)	(0.183)	(0.175)
Estimated Non-Military Overseas Students	0.455**	0.591***	0.532**	0.719***	0.716***	0.829***	0.437**	0.479**	0.462**
	(0.202)	(0.202)	(0.210)	(0.237)	(0.242)	(0.248)	(0.195)	(0.203)	(0.198)
All Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
Segment F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y
Segment Clustering	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	720	368	105	720	368	105	720	368	105

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Robust standard error in parentheses. Constant added but not reported.

Table VII. Robustness Check: Self-Selection Concerns

	Democratic Parties			**Assemblymen**			**1911 Revolution**		
	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Estimated Government-sponsored Overseas Students	0.351**	0.399**	0.398**	0.778***	0.854***	0.855***	0.896***	0.891***	0.962***
	(0.185)	(0.193)	(0.195)	(0.196)	(0.213)	(0.215)	(0.198)	(0.202)	(0.209)
Estimated Self-support Overseas Students	0.385**	0.401**	0.424**	0.451**	0.470***	0.447***	0.352**	0.382**	0.406**
	(0.172)	(0.165)	(0.167)	(0.177)	(0.175)	(0.174)	(0.164)	(0.179)	(0.174)
All Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y
Segment F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y
Segment Clustering	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	720	368	105	720	368	105	720	368	105

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Robust standard error in parentheses. Constant added but not reported.

Appendix C

Table I and Figure I: Balance Check for *Geographic Conditions*

	Terrain Ruggedness Index			**Slope**			**Elevation**			**Distance to Major Rivers**		
	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
MLine	-1.135	-0.778	-0.794	-0.0244	-0.0937	-0.0116	-0.912	-1.034	-1.133	0.00183	0.102	0.0196
	(0.947)	(0.656)	(0.681)	(0.0431)	(0.105)	(0.0108)	(0.695)	(0.699)	(0.701)	(0.142)	(0.179)	(0.235)
Segment F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Segment Clustering	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	720	368	105	720	368	105	720	368	105	720	368	105

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Robust standard error in parentheses. Constant added but not reported.

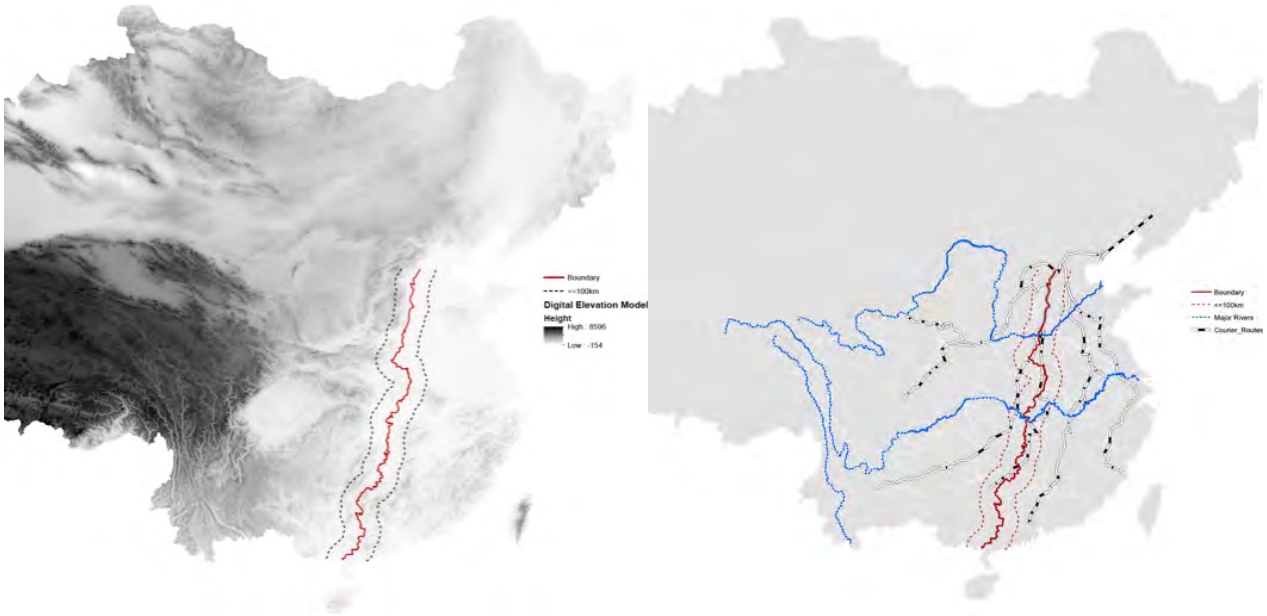


Table II and Figure II: Balance Check for *Initial Economic Conditions*

	Caloric Suitability Indices			**Urbanization Rate**			**Population Density**		
	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
MLine	-0.0521	-0.0941	0.0947	0.00322	0.0293	0.0203	-0.130	0.0856	0.158
	(0.0540)	(0.0826)	(0.0782)	(0.0282)	(0.0471)	(0.0483)	(0.188)	(0.147)	(0.172)
Segment F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y
Segment Clustering	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	547	323	190	547	323	190	547	323	190

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Robust standard error in parentheses. Constant added but not reported.

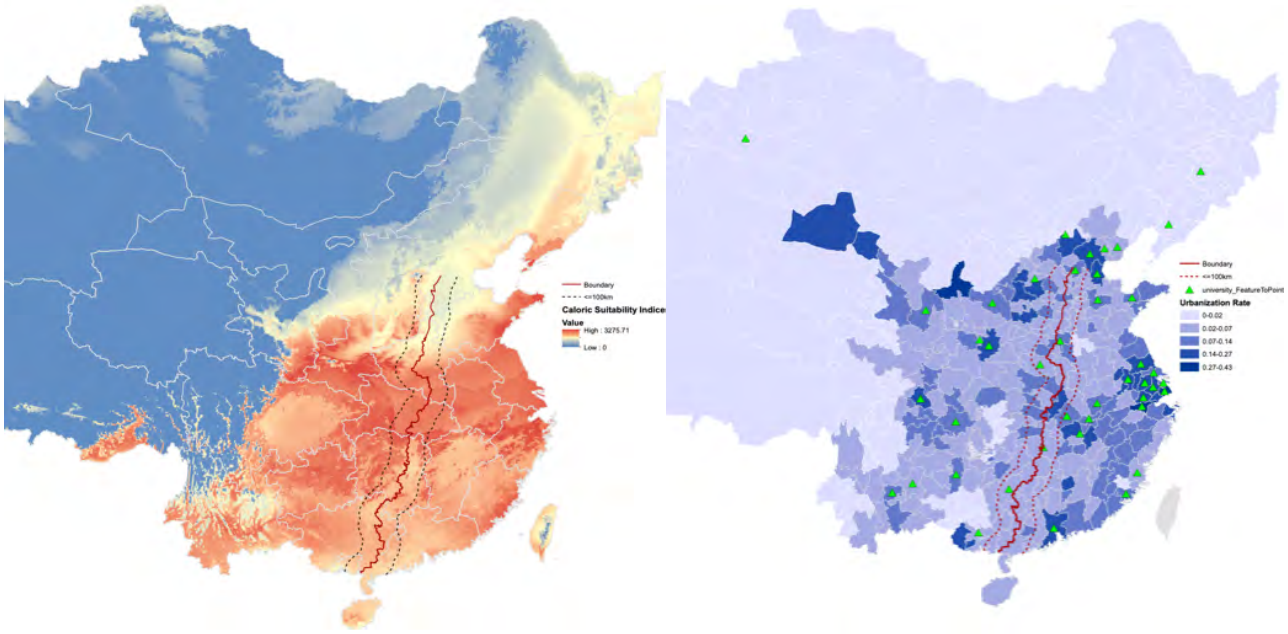


Table III and Figure III: Balance Check for *Western Economic Impact*

	Treaty Ports			**Foreign Firms and Banks**			**Missionary Density**		
	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
MLine	0.0369	0.0188	0.0407	0.0565	0.0785	0.0217	-0.000510	-0.00162	-0.00233
	(0.0301)	(0.0376)	(0.0391)	(0.0476)	(0.0520)	(0.0480)	(0.00141)	(0.00124)	(0.00193)
Segment F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y
Segment Clustering	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	547	323	190	547	323	190	547	323	190

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Robust standard error in parentheses. Constant added but not reported.

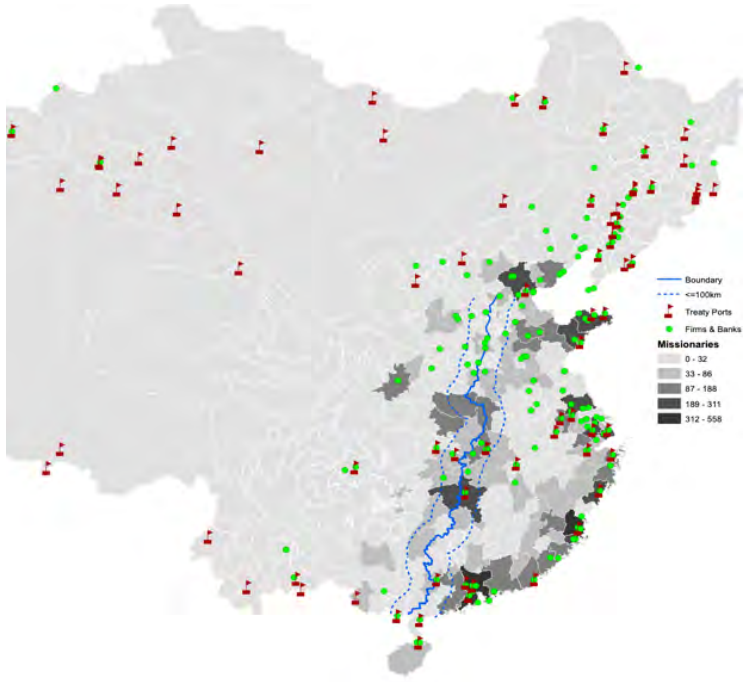


Table IV and Figure IV: Balance Check for *Human Capital Endowments*

	Universities			***Shengyuan* Quota Share**			***Jinshi* Density**		
	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
MLine	-0.0984	0.189	0.397	0.000122	-0.00106	0.000168	-0.130	0.0856	0.158
	(0.474)	(0.699)	(0.805)	(0.00198)	(0.00117)	(0.000940)	(0.188)	(0.147)	(0.172)
Segment F.E.	Y	Y	Y	Y	Y	Y	Y	Y	Y
Segment Clustering	Y	Y	Y	Y	Y	Y	Y	Y	Y
Observations	547	323	190	547	323	190	547	323	190

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Robust standard error in parentheses. Constant added but not reported.

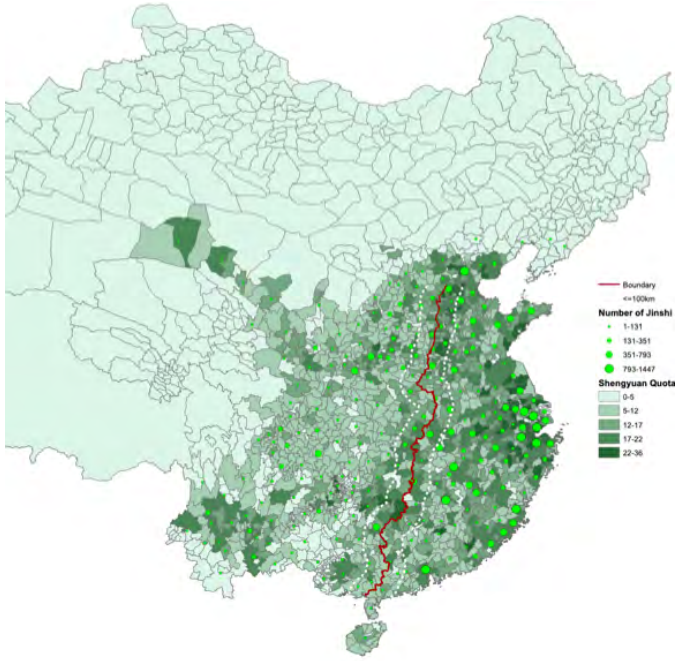


Table V and Figure V: Balance Check for *Violence Tradition*

	Civil Conflicts			**Pre-1898 Anti-Qing Conflicts**		
	≤200km	≤100km	≤50km	≤200km	≤100km	≤50km
	(1)	(2)	(3)	(4)	(5)	(6)
MLine	-0.0134	-0.0296	-0.0153	0.0244	-0.0937	0.116
	(0.0819)	(0.184)	(0.200)	(0.0664)	(0.105)	(0.108)
Segment F.E.	Y	Y	Y	Y	Y	Y
Segment Clustering	Y	Y	Y	Y	Y	Y
Observations	547	323	190	547	323	190

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Robust standard error in parentheses. Constant added but not reported.

