Buddha's Grace Illuminates All: Temple Destruction, School Construction, and Modernization in 20th Century China

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Abstract

This paper studies how modern human capital emerged in early 20th century China. We document a novel historical episode known as the "Temple Destruction Movement" (TDM), in which Chinese local governments appropriated huge amounts of Buddhist and Taoist temple assets to support the modernization of local schooling. We find that before the TDM, the initial stock of temple assets was uncorrelated with the levels and trends of human capital development; after the TDM started, regions with higher initial stocks of temple assets suddenly constructed more modern schools, enrolled more students in modern educational programs, and produced more modern elites. A back of the envelope calculation suggests that the TDM could account for nearly 70% of China's modern school construction in the early 20th century, which is consistent with historical records collected from numerous county gazzeteers. Further analysis shows that the TDM was most effective in the presence of both a strong government and a powerful civil society, as the former made it easier to appropriate assets from the religious sector, while the latter helped prevent the confiscated religious assets from being captured by local officials.

Keywords: Temple Destruction Movement; Modern Human Capital; Secularization

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1. Introduction

Modern human capital is long regarded as a crucial factor that paves the way from stagnation to sustained economic development (Kuznets, 1973; Mokyr and Voth, 2009). However, traditional societies generally lack the economic resources to effectively modernize their existing education systems (Chaudhary et al., 2012), nor do they often have the incentives to do so, given the potential obstruction by powerful vested interests (Mariscal and Sokoloff, 2000; Go and Lindert, 2010; Cantoni and Yuchtman, 2013; Chaney, 2019). Therefore, to understand the process of economic modernization, it is critical to carefully examine the political and economic factors that allow modern human capital to emerge and thrive in traditional societies.

In this paper, we attack this important question in the context of early 20th century China, when the country abandoned its 13-century old civil service exam system, and rapidly established a modern education system nationwide (Gao, 2015). Specifically, we focus on a novel historical episode known as the "Temple Destruction Movement" (TDM), in wchich local governments were encouraged to confiscate the assets of Buddhist and Taoist temples to support modern education in the local areas. Leveraging detailed historical records from various sources, we first quantify the central role of the TDM in cultivating modern human capital in traditional Chinese society, and then shed light on the underlying political-economic conditions that enabled such secularization of religious assets for modernization.

Our results suggest that before the TDM started, the regional initial stock of temple assets was orthogonal to the levels and trends of human capital development. However, after the TDM started, areas with higher initial stocks of temple assets started to construct more modern schools, enroll more students in modern education programs, and produce more modern elites (top university alumni). A back of the envelope calculation suggests that the TDM could account for nearly 70% of the modern school construction during our sample period, which is consistent with numerous case studies compiled from historical archives (Xu, 2010). We also find suggestive evidence that the positive impacts of the TDM on human capital accumulation have persisted to the present.

We provide additional evidence on the political-economic mechanisms behind the secularization of religious assets. First, we find that only public temples were "taxed" to support modern education, while clan temples (those controlled by local clan families) were completely immune to the process. Second, we find that the TDM was more effective in regions with stronger state capacity. Third, we find that the TDM was more effective in

regions with a stronger civil society. Together, these findings suggest that in order to secularize religious assets to support modernization, the religious sector had to be relatively weak compared to the state; at the same time, in order to ensure that the confiscated religious assets would indeed be used to support modern education (rather than being captured by the state), the presence a strong civil society provided critical checks and balances.

To rule out alternative interpretations of our main findings, we conduct a series of additional analyses. First, we conduct a synthetic control test to show that, in areas that had rich stocks of temples but were excluded from the TDM due to historical coincidents, few schools were constructed, suggesting that our findings are indeed driven by the appropriation of temple assets for school construction, rather than other confounding factors that are correlated with the presence of temple assets. Second, the effects cannot be explained by the distribution of temple buildings at present; this suggests that the power of local governments and civil society to direct temple assets to modern education, rather than cultural or geographical attributes related to temple distribution, was the driving force behind modern education expansion during the TDM. Third, we find that in places where temples were razed before the TDM due to the Taiping Rebellion in the 1850s, the initial stock of temple assets (measured using data from 1820) has little predictive power on school construction during the TDM period, again suggesting that the investment of physical temple assets in education was the main mechanism behind our findings.

Our study speaks to three strands of literature. First, it adds to the economic history literature on modern human capital in traditional societies. Although an extensive literature has long argued that modern human capital is essential for the transition toward sustained economic growth (Kuznets, 1973; Mokyr, 2005; Mokyr and Voth, 2009; Galor, 2011; Becker and Woessmann, 2009; Becker et al., 2011; Squicciarini and Voigtländer, 2015), how modern human capital could actually emerge in a traditional society is relatively under-researched. The handful of papers studying the emergence of modern human capital mainly focus on Europe (Becker and Woessmann, 2009; Cantoni and Yuchtman, 2014), and the human capital moderniztaion process in other economies is much less well-understood. In this paper, we add to this literature by focusing on 20th century China, and demonstrate how the government's appropriation of religious assets helped initiate the massive modernization of human capital.

Second, our paper contributes new evidence to the literature on secularization and development. Specifically, existing work on this topic mainly focuses on investigating the

relationship between the Reformation, secularization, and historical development (Rubin, 2017; Cantoni et al., 2018), with some work making comparisons between Europe and the Islamic world (Chaney, 2008; Kuran, 2011). Our paper adds to this literature by providing the first empirical evidence on secularization and development in the context of historical China, documenting how Buddhist and Taoist temple assets were used to modernize human capital across the country. The political-economic mechanisms for secularization in our setting also differ from those in the case of the Reformation. We find that the state had to be strong relative to the religious sector in order to ensure the confiscation of religious assets, and that the civil society had to be strong relative to the state to prevent political elites from capturing the secularized assets.

Third, this study relates to a growing literature on the persistence of human capital through history. It has been shown that mass human capital accumulation in history can have persistent effects on today's levels of education (Huillery, 2009; Nunn, 2009; Wantchekon et al., 2015; Rocha et al., 2017). We add another piece of evidence to this literature, by documenting the persistence of modern human capital in 20th century China. A paper closely related to ours is Chen et al. (2020), which shows that the presence of more traditional elites under the old civil service exam system could lead to higher levels of human capital today. Our paper complements Chen et al. (2020) by investigating the persistence of modern (rather than traditional) human capital, which emerged mostly after the civil service exam was abolished and the TDM was implemented.

The remainder of this paper is organized as follows. Section 2 documents the historical background of modern human capital formation in China and introduces the TDM. Section 3 explains the data and presents descriptive statistics. Section 4 discusses the effects of the TDM on modern human capital formation. In Section 5, we investigate the political-economic mechanisms behind the baseline findings. Section 6 discusses the short-run and long-run significance of the TDM. Section 7 concludes.

2. Historical Background

For over 1300 years, China's civil society was fundamentally shaped by its civil service exams (Ho, 1962; Elman, 2000). At various levels, tutors, schools, and academies trained students in Confucian classics, which were the official materials assigned by the government. To prepare for these exams, students had to fully devote themselves to writing poems and eight-legged essays (*Baguwen*), leading to the academic tradition of valuing humanities over science and technology (Huff, 2003).

It is believed that the traditional education system had mixed impacts on historical China. On the one hand, the Confucian classics helped maintain political stability in the local areas (Ma and Kung, 2014), and the civil exams as a meritocracy system effectively provided upward social mobility (Bai and Jia, 2016) and affected a region's long-run economic development (Yang, 2017). On the other hand, the traditional education system discouraged the cultivation of modern human capital and "practical" knowledge, which explains why China failed to modernize its institutions and economy in the 19th century (Lin, 1995).

After China's consecutive military defeats against the western powers and Japan in the late 19th century, the Imperial government and traditional elites realized the urgency of adopting modern technologies and education systems. However, the public provision of modern education required tremendous financial support, which was not affordable for the late Qing government; after the Sino–Japanese war in 1894, the deficit of the Qing government reached 15 million tael of silver, which further increased to 80 million in 1910 (Zhang, 1999).[1] As a result, the central government decided to fund only some small and elite education programs, such as establishing a handful of public universities and sending elite youngsters to study abroad, while leaving the entire responsibility of providing mass modern education to the local governments and local elites.

In 1898, one of the most powerful Chinese politicians at the time, Zhang Zhidong, wrote a famous proposal (*Quanxue Pian*) to the Emperor Guangxu and Empress Dowager Cixi, suggesting that the government should confiscate the assets of the country's over two million Buddhist and Taoist temples, and use that money to support modern education nationwide. As part of the comprehensive 1898 national reform plan (*Wuxu Bianfa*), the government accepted this advice. This massive program approved by the Qing government, commonly known as the Temple Destruction Movement (TDM), aimed to convert 70% of the country's temples into primary schools, and confiscate 70% of their assets as local education budgets (Shi, 1974; Xu, 2010).[2] However, the 1898 national reform only lasted 104 days, before six of the major designers of the reform were sentenced to death and the emperor himself was imprisoned in the Forbidden City. As a result, the vast majority of the innovative new policies issued during the reform were suspended by the central government, including the TDM.[3]

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[1] Tael is a Chinese traditional unit of weight, 1 tael ≈ 1.33 ounce.

[2] Indeed, Imperial China had a long-standing historical tradition that governments solve their fiscal crises by seizing temple assets, which might have inspired Zhang's idea (Shi, 1974).

[3] The only exception is Peking University, which was founded during the reform and remains the top university in China today.

In 1905, Japan won the Russo–Japanese War, which was the first major military victory by an Asian power over a European nation in the modern era. The traditional elites in China attributed Japan's success to the Meiji restoration and modernization reform. This set an example for the Qing dynasty, and facilitated a new round of education reforms. In the same year, the Qing government abolished the civil service exam and the traditional education system, and required primary and secondary schools to teach modern curricula instead of Confucian classics (Franke, 1960; Borthwick, 1983). The modern education system included six years of primary school and six years of secondary education. The primary and secondary school curricula taught students about foreign languages, math and sciences at introductory levels.

Under this pressure to replace the old education system with a modern one, some local elites urged the local governments to restart the TDM program in 1905. However, following strong resistance from the local Buddhist and Taoist leaders, the central government officially discouraged such initiatives. In April 1905, the Qing government explicitly re-emphasized that the TDM policy remained illegal in the country. The official statement of the Qing government, combined with the strong resistance from Buddhist and Taoist leaders, significantly limited the scope of the TDM (and the modernization of education) in the late Qing era (Xu, 2010).

In 1912, the Qing government was overthrown by Republican revolutionaries, and the Republic of China was founded. Motivated by the spirit of "eradicating superstition and promoting modernization," the Republican government immediately decided to stop protecting the temples. Specifically, in 1913, President Yuan Shikai issued the interim version of "Thirty-One Rules of Temple Administration," which, later formalized in 1915, officially empowered the local governments to appropriate 100% of local temple assets to support local modern education. Following the declaration of the "Thirty-One Rules," local governors and elites quickly seized the opportunity to appropriate temple assets, and the TDM soon thrived nationwide.

In the 1930s, the Republican party (*Kuomintang*) re-established centralized state power, and a series of additional policies were strictly enforced to help further confiscate remaining temple assets for school construction. Specifically, local governments were required to conduct detailed surveys of all the temple assets within their jurisdictions, so that they could confiscate all the valuable properties accordingly. As documented by historical studies, the TDM reached its peak between 1928 and 1938 (Goossaert and

Palmer, 2011). In 1949, the People's Republic of China was established, and the TDM was officially terminated by the new government.[4]

Buddhist and Taoist temples were targeted for confiscation during the TDM because they had accumulated tremendous wealth in the form of buildings, land, antiques, artworks, gold and silver, etc. Despite the lack of accurate administrative records, some historical studies estimate temple assets based on various archives. Xu (2010), for example, estimates that about two million Buddhist and Taoist temples existed in the late Qing dynasty, collectively owning about 16 million buildings, 13,000 square kilometers of land and millions of tael of silver.

While causing the greatest disaster for Buddhism and Taoism in Chinese history,[5] the TDM is believed to have contributed significantly to China's modern education system. In Appendix Table A1, we summarize the county gazetteer data collected by Xu (2010), which covers eight different counties across China. Based on this information, between 1910 and 1930, roughly 70% of modern schools in these counties were established with temple assets. In addition to financing school construction, temples also helped sustain the operation of these schools during wartime. Throughout the Republican era, many local governments imposed substantial "religion taxes" on temples and their landholdings, which contributed greatly to the provision of modern education in that era (Xu, 2010).

With adequate resources confiscated from temples, modern education thrived nationally during the TDM (Shang, 2001; Su, 2007). As shown in Figure 1, in the first half of the 20th century, the development of modern education was boosted twice: first in the 1910s, and again in the 1930s. During these two decades, the number of modern schools and students increased drastically, concurring with the periods in which the TDM was initiated and reinforced by the central government. These patterns are consistent with historical case studies suggesting that the TDM was the predominant driving force behind China's construction of its modern education system.

3. Data and Key Variables

In this study, we put together what is, to our knowledge, the most comprehensive and disaggregated dataset on the development of education in early 20th century China, and

[4] For more information on the implementation of the TDM policy in the first half of the 20th century, see Katz (2009, 2012, 2014) and Shi (1974).

[5] There were four similar events of confiscating temple assets in Chinese history, referred to by the Buddhists as the "four great disasters" (*Sanwu Yizong Fanan*), but it has been documented by historians that none of them could compare to the TDM in terms of magnitude (Duara, 1991; Shi, 1974; Goossaert, 2006; Goossaert and Palmer, 2011).

combine it with rich information on historical temple distributions, and other important historical and 21st century socio-economic characteristics.

A. Main Dataset

Historical Data on Modern Education

We digitize historical records on modern education for six historical periods ranging from 1907 to 1930, including detailed information on the number of schools and students, types of schools, and education budget at the county level. For the first five periods (1907, 1908, 1909, 1915, 1916), our data are digitized from the five rounds of the "Statistical Chart of Education" (*Jiaoyu Tongji Tubiao*) collected by the Ministry of Education of the Republican government.[6]

After 1916, due to increasing civil conflicts, the central government could no longer maintain a nationwide survey of education at the county level. Therefore, we instead search for the records of surveys conducted independently by different provincial authorities and try to match them to form a comprehensive national dataset. We are able to find education survey results for 10 provinces ranging between 1925 and 1935, and we merge these separate datasets into one cross-sectional dataset in 1930. The above surveys have been validated by historians as credible sources of information (Shang, 2001; Su, 2007). By digitizing all these survey data, we are able to construct a disaggregated and comprehensive education dataset for early 20th century China. Table A2 in Appendix A presents a detailed list of the historical archives used to construct this dataset.

We then perform two important adjustments to the dataset. First, we drop the 1916 data because of the large number of missing values and outliers. Second, since county-level boundaries within each prefecture frequently changed between 1907 and 1930 and historical GIS maps at the county level are unavailable, we are unable to keep a panel dataset at the county level. Therefore, we aggregate the county-level dataset at the prefecture level based on the 1820s map from CHGIS.[7] Since county boundary changes rarely happen across different prefectures, this aggregation allows us to construct a prefecture-level panel dataset covering five years, with 264 prefectures from 1907 to 1915, and 135 prefectures in 1930.

[6] This survey was initiated in 1907 by the Minister of Education Zhang Zhidong, who was also the initiator of the TDM. The details of this survey have been carefully documented by historians such as Guan (1999) and Wang (2010).
[7] The China Historical Geographic Information System provides a prefectural-level GIS map for 1820. See Harvard Yenching Institute (2007).

Top University Alumni

From the official alumni books of the top two universities in China (Peking University and Tsinghua University), we are able to identify 16,439 students who graduated from these two institutions between 1910 and 1950.[8] We divide the era into eight five-year periods to smooth the trends and, for each prefecture, we count the number of students enrolled in the top two universities in each period.

Temples

The information on temple assets is documented in the Imperial Encyclopedia of the Qing Empire (*Daqing Yitong Zhi*), released in 1842, which was a comprehensive archive that took the Qing government more than 150 years to compile. For each prefecture, we count the number of important temples documented in the encyclopedia (as of 1820) and use this as the indicator for the prefecture's initial stock of temple assets before the TDM. We also collect the number of clan temples for each prefecture from the same source, by counting the number of important private temples that belong to those local clan families.

In addition, for robustness checks, we collect an alternative measure of the number of temples from another, independent historical archive, the Encyclopedia of Geographic Books (*Gujin Tushu Jicheng Dilizhi*), which contains detailed physical and human geographic information for most Chinese prefectures in the 18th century. For each prefecture, we count its total number of important temples as of 1776, which is more than 130 years before the TDM.

We also collect the number of temples in 2006. The GIS map from Gui (2006) provides the specific locations of all the 18,938 major Chinese temples in 2006.

Historical Control Variables

We also make use of a rich set of historical control variables, including population, land area, the number of *Jinshi* , civil service exam quota, the number of charitable organizations, the importance of the local prefecture (as defined by the central government), whether the prefecture had a treaty port, the caloric suitability index post 1500, the local crop prices, and the local tax revenue. We discuss these control variables in greater detail in Appendix C.

[8] Tsinghua University was established in 1911, while the PR China was established in 1949, and thus we only collect data between 1910 and 1950. For more details on the alumni data, see Hao and Clark (2012).

County-level Contemporary Data on Human Capital

To study the long-term impacts of the TDM, we assemble contemporary socio-economic indicators of Chinese counties. We obtain county-level data on human capital in 2000, including information on population, literacy rates, and years of schooling from the *Fifth National Population Census* (National Bureau of Statistics, 2000).

To measure modern elite human capital, we obtain administrative data on the county of origin for all the students admitted to Peking University and Tsinghua University between 2006 and 2011.[9] We aggregate the data as a county-level cross-section, and match it to our contemporary county-level dataset.

One difficulty in matching contemporary outcomes to historical variables is that jurisdictional boundaries shift over time, especially when political regimes change, making it difficult to track the same unit of observation over a long historical period. We address this issue by comparing the 1820 GIS map with the 2000 GIS map, which allows us to assign the historical variables to contemporary counties using overlapping area as weights. Appendix B summarizes the details of this method.

B. Summary Statistics and Balance Tests

Table 1 summarizes all the variables used in this study, including their definitions, sources, and basic descriptive statistics. We discuss the construction of these variables in greater detail in Appendix C.

While our main analysis relies on a Difference-in-Differences design, which does not require the distribution of temples to be orthogonal to various socio-economic factors, we still conduct balance tests to understand the potential pre-TDM correlations between temples and different socio-economic factors. Specifically, we run cross-sectional regressions of those outcomes on the initial stock of temples, controlling for the initial levels of population and land area. Table A3 presents the results of these balance tests. As we can see, before the TDM, among the 12 variables examined, the only variable weakly correlated with temples is the average civil exam quota, but controlling for this variable (and its interactions with time FEs) in subsequent analyses will not change our main findings in any substantial way.

The fact that the initial stock of average temples is orthogonal to the initial levels of traditional elites (*Jinshi*) and modern primary schools/students strongly suggests no correlation between temples and human capital before the TDM. This finding suggests

[9] For more details about this dataset, see Ding et al. (2016).

that any differences between areas with higher initial stocks of temples and lower initial stocks of temples after the TDM should not be attributed to differences in initial human capital stock.

Similarly, the fact that the initial average stock of temples is orthogonal to the initial levels of tax revenue, crop prices, treaty ports, and factory establishments strongly suggests no correlation between temples and economic development before the TDM. Also, as pointed out by Galor and Özak (2016), caloric suitability is an important pre-condition for local development and urbanization. We find that this indicator is not correlated with temples either.

Finally, the fact that the initial average stock of temples is uncorrelated with the average number of local charity organizations suggests that areas with more temples did not have higher levels of altruism, which helps rule out altruistic public good provision as a potential confounding mechanism.

4. TDM Impacts on Short-run Human Capital Accumulation

In this section, we investigate the short-run effects of the TDM on modern human capital accumulation using a Difference-in-Differences (DiD) approach.

In Subsection A, we present the baseline effects of the TDM on mass modern human capital accumulation, as measured by the average number of modern primary schools and students. In Subsection B, we investigate various alternative interpretations of the baseline findings, and discuss the robustness of our results. In Subsection C, we present evidence on the impacts of the TDM on elite human capital formation.

A. TDM and Mass Human Capital

After the TDM started, prefectures with higher initial stocks of temple assets suddenly obtained easier access to funding for modern education, which could potentially lead to increased modern school construction and student enrollment in these areas. We investigate this relationship using a DiD model:

$$School_{i\tau} = \sum_{\tau} \alpha_{\tau} \cdot Temple_i \cdot Year_{\tau} + X'_{i\tau} \cdot \beta + Year_{\tau} + \mu_i + \varepsilon_{i\tau} \quad (1)$$

where $School_{i\tau}$ is defined as the number of primary schools per 10,000 people in prefecture i in year τ, where $\tau \in \{1908, 1909, 1915, 1930\}$. $Temple_i$ is defined as the number of temples per 10,000 people in prefecture i (measured in 1820). $Year_{\tau}$ is the time fixed effect. $X_{i\tau}$ is a set of control variables that vary both across prefectures

and over time, μ_i is the time-invariant effect unique to prefecture i, and $\varepsilon_{i\tau}$ is the error term distributed independently of μ_i and $Year_\tau$. The year 1907 is omitted for comparison. To address the serial correlation of the error term, we cluster our standard errors at the prefecture level.

Since the TDM formally started in 1912, the changes between 1907 and 1909 should be interpreted as "pre-TDM trends," while the changes between 1909 and 1930 should be interpreted as "post-TDM trends." To investigate the validity of our research design, we need to verify the "parallel pre-trends" assumption: before the TDM, the initial stock of average temple assets should be uncorrelated with the trends of school construction. As shown in Table 2, across all specifications, the interactions between average temples and year dummies for 1908 and 1909 are precisely estimated and not statistically distinguishable from zero, which is consistent with the "parallel trends" assumption. In contrast, the interaction terms "temple*1915" and "temple*1930" are both positive and statistically significant, indicating that prefectures with higher initial stocks of temples constructed more modern schools after the TDM started.

Specifically, in column 1, we present the baseline results without any historical control variables. In columns 2 and 3, we control for different historical variables including the dynamic impacts of population, area, average number of *Jinshi*, administrative characteristics, caloric suitability, and treaty ports. We find the baseline results to be highly robust. To the extent that the common confounding factors would likely be correlated with some of those historical control variables, the fact that the inclusion of these variables barely changes the baseline coefficients supports our interpretation of the baseline findings.

A potential concern is that since there were fewer schools constructed between 1907 and 1909, the previous evidence for parallel pre-TDM trends (insignificance of the 1908 and 1909 coefficients) might just be mechanically under-powered, rather than suggesting that there actually exists a break in trends after the TDM started. To address this issue, we conduct a companion test of whether the pre-trend is underpowered, by regressing the average amount of school construction and student enrollment in the pre-TDM period (1907-1909) on the average number of temples in 1820, as well as a series of relevant historical control variables. As shown in Appendix A's Table A4, while the number of temples is uncorrelated with pre-TDM school construction and student enrollment, other variables, such as food price, Caloric Suitability Index, tax revenue, and population, do strongly predict modern human capital accumulation in the pre-TDM period, which further suggests that our baseline parallel pre-trends pattern is not mechanically driven by

the low amount of school construction in the pre-TDM period, but rather indeed reflects the orthogonality between temples and pre-TDM trends for human capital accumulation.

In column 4, we exclude the prefecture fixed effects and include the interaction term "temple*1907" to test whether regions with different numbers of temples have different initial numbers of schools in 1907. As we can see, the coefficient is small and statistically insignificant, indicating that the initial average stock of temples is uncorrelated with the average number of schools in 1907, which verifies the observation from the graphical analysis that not only are the prior trends balanced, but the initial levels are as well.

Column 3 is our preferred specification, as it uses the full sample and controls for the dynamic impacts of all the relevant historical covariates we have collected. The coefficients suggest that between 1909 and 1915, a 1 standard deviation (S.D.) increase in the average temples leads to a 0.14 S.D. increase in the average number of primary schools; between 1915 and 1930, a 1 S.D. increase in the average stock of temple assets leads to another 0.86 S.D. increase in the average number of primary schools. These effects are huge in magnitude, which is consistent with the findings in the historical case studies that more than 70% of primary schools in Republican China were constructed using temple assets (Xu, 2010).

Panel A in Figure 4 illustrates the TDM impacts on primary schools, highlighting the identical trends before 1909, and the significant break in trends afterwards.

We also estimate the effect of the TDM on primary school students using the same econometric model. As shown in Table 3, the patterns of the results are very similar to those of Table 2. The parallel trends assumption was satisfied before the TDM. After the TDM began, areas with higher initial average stocks of temples enrolled significantly more students. The results are highly robust to the inclusion of various historical control variables, to the use of a balanced panel, and to the use of the subsample of prefectures with significant pre-TDM student enrollment. Column 4 again indicates that the initial average number of students (in 1907) is uncorrelated with the average stock of temples. Our preferred estimate in column 3 thus suggests that the effect of a 1 S.D. increase in average temple assets leads to a 0.09 S.D. increase in the average number of primary schools in 1915 compared with another 1.05 S.D. increase in 1930. These magnitudes are consistent with our findings for primary schools. We visualize these results in Panel B in Figure 4.

To further investigate the robustness of our baseline findings, we conduct a series of additional robustness checks, including exploiting alternative measures of initial temple

assets, controlling for historical stock of traditional schools, etc. Our results are highly robust to these alternative specifications, and the details of these tests are discussed in Appendix D.

B. Mechanisms

Despite the fact that the initial stock of temple assets appears to be orthogonal to the levels and trends of pre-TDM human capital accumulation, one might still have concerns about confounding mechanisms behind our DiD results. Specifically, while the parallel pre-trends condition is satisfied, some unobservable factors may be correlated with the initial stock of temples, and these factors might affect human capital accumulation differentially before and after 1912, thereby confounding our results. Obvious candidates for such omitted variables would be culture, superstition, religious beliefs, social capital, etc.

In Tables 2 and 3, we have shown that the inclusion of a long list of historical control variables barely move the temple coefficients, which suggests that the confounding stories are unlikely to be true, to the extent that we believe the confounding factors should also likely be correlated with some of these historical control variables. In this subsection, we attempt to further address the omitted variables concern by providing four additional pieces of evidence.

First, we exploit a unique feature of the TDM: when the central government launched the TDM and encouraged local governments to confiscate temple assets for educational purposes, it clearly emphasized that some temples must be protected. One famous case was *Rehe* prefecture, whose initial average stock of temples ranked at the top of the country. Many of the temples in *Rehe* prefecture were royal temples, which were regarded as the private properties of the Qing royal family. During the revolution in 1911, the emperor of the Qing dynasty chose to abandon its political power in exchange for the protection of the royal family properties. Therefore, an agreement was signed by the Republican government and Qing royal family, which indicated that all the private properties of the Qing royal family, including those royal temples, must be carefully protected by the new government. This agreement was strictly enforced by the Republican government (Forêt, 2000). As a result, despite its extreme richness in temple assets, *Rehe* prefecture ranked much below the median in terms of school construction between 1909 and 1915, when its temple assets were under the protection of the Republican government. More formally, we implement a synthetic control analysis, and visualize the results in Figure 5.[10] It is predicted

[10] The prior levels and trends of primary schools, the average stock of temples, population, area, average *Jinshi*

that, had the TDM not been banned in *Rehe* prefecture, its school construction would have been 26 times higher than it was in reality.[11] This placebo analysis further supports our argument that temples are unlikely to have affected school construction through channels other than the TDM.

Second, we control for the dynamic impacts of historical clan temples in our econometric specification. Similar to those ordinary Buddhist and Taoist temples, these clan temples are also religious spaces, and therefore could potentially reflect local characteristics, such as superstition and social capital (Tsai, 2007). However, an important difference is that the clan temples were private properties of those large local clan families, who, unlike the monks, had strong abilities to protect their assets from being appropriated during the TDM. As a result, while clan temples served similar religious and social roles as those ordinary Buddhist/Taoist temples, their assets could hardly be confiscated during the TDM. Therefore, if our results are actually driven by confounders such as superstition or social capital, controlling for the interactions between clan temples and year FE should eliminate much of the effects of Buddhist/Taoist temples, and the clan temples should also have significant impacts on school construction and student enrollment. However, as can be seen in columns 1 and 4 of Table 4, controlling for the dynamic impacts of clan temples barely changes the coefficients for Buddhist/Taoist temples, and clan temples also have no noticeable impact on school construction. Both patterns support our TDM story over alternative interpretations.

Third, we conduct another placebo test: if the TDM is indeed driving our baseline results, then the effects on human capital accumulation in the Republican era should come from temples that were built before the TDM, rather than those built after the TDM was terminated. This means that if we control for the number of temple structures that still exist, we should expect to see the baseline coefficients of the 1820 temples remain essentially unchanged. On the other hand, if historical temples are mainly picking up the effects of confounders such as culture, social capital, or religious beliefs, given the persistence of these variables, we should expect that controlling for current temples would significantly attenuate the 1820 temple coefficients. As shown in columns 2 and 5 of Table 4, when we control for the interactions between current temples and year FE, the

number, importance level, and the dummy variable of treaty ports are used to simulate the control group.

[11] As shown in Figure 5, actual school construction increased from 0.39 in 1909 to 0.47 in 1915. By contrast, counterfactual school construction increased from 0.38 in 1909 to 2.48 in 1915. Therefore, counterfactual school construction between 1909 and 1915 would be higher than reality:
($x = \frac{Counterfactual_{1915} - Counterfactual_{1909}}{Actual_{1915} - Actual_{1909}} \approx 26.3$).

coefficients for 1820 temples barely move at all, again supporting our proposed mechanism over alternative explanations.

Fourth, in order to further establish that the physical temple assets (rather than other omitted variables) are driving the coefficient of 1820 temples, we exploit the historical episode of the Taiping Rebellion happened between 1851 and 1864, during which time many temples in prefectures occupied by the Taiping troops were razed to collect military funds. We hypothesize that in prefectures that were occupied by the Taiping troops, since a lot of the physical temple assets in 1820 were already razed before 1912, the amount of temples in 1820 should have much weaker (if any) predictive power on school construction and student enrollment during the TDM. This hypothesis is confirmed in columns 3 and 6 of Table 4: when the sample is restricted to the prefectures that were occupied during the Taiping Rebellion, 1820 temples do not have any significant impacts on human capital accumulation during the TDM, again confirming our interpretation of the baseline results.

C. TDM and Elite Human Capital

Modern elites play vital roles in social and economic modernization (Mokyr, 2005; Cantoni and Yuchtman, 2014; Squicciarini and Voigtländer, 2015). In this subsection, we investigate whether the TDM, by initiating massive primary school construction and student enrollment, eventually contributed to the accumulation of elite human capital formation.

We measure elite human capital using the average number of alumni from China's top two universities (i.e., Peking University and Tsinghua University), based on information digitized from the alumni yearbooks of these two schools. We first estimate the following equation:

$$Alumni_{i\tau} = \sum_{\tau} \alpha_{\tau} \cdot Temple_i \cdot Period'_{\tau} + X'_i \cdot \beta + \rho_{\tau} + \mu_i + \varepsilon_{i\tau} \quad (3)$$

where $Alumni_{i\tau}$ is the average number of alumni from the top two universities for prefecture i in the 5-year period τ. $Temple_i$ is the average stock of temples in prefecture i in 1820, $Period'_{\tau}$ is a group of period dummies, and $X'_{i\tau}$ is a vector of prefecture-level control variables that varies over periods and across prefectures. ρ_{τ} is the period fixed effect, μ_i is the prefecture fixed effect, and $\varepsilon_{i\tau}$ is the error term, which varies across both periods and prefectures. Standard errors are clustered at the prefecture level.

Figure 6 plots the point estimates. As discussed in Section 2, the TDM started to thrive after 1912. Considering the regular duration of primary and middle school education (around 10 years at that time), we would expect the effect of the TDM on top university

enrollment to emerge only after 1920.[12] As shown in Figure 6, this is exactly the case: before 1920, the initial average stock of temples had no real impact on the average number of students attending the top universities; after 1920, areas with higher average stocks of temples suddenly started to have significantly more students attending the top universities.

Exploiting the 1920 cutoff, we define a post-TDM dummy that equals 1 if the period is after 1920 and 0 otherwise. In equation (3), instead of interacting temples and periods, we now interact temples and this post-TDM dummy, in order to capture the full effect of the TDM on top university enrollment. As shown in Table 5, the TDM indeed boosted elite human capital accumulation: a 1 S.D. increase in the stock of average temples resulted in an about a 0.12 S.D. increase in top university alumni after the TDM started.

In our preferred specification (column 2), we control for the dynamic impacts of a rich set of historical control variables, including land area, local population, the stock of traditional elites, local political characteristics, and local economic characteristics. Moreover, the main effects persist when we control for the dynamic impacts of traditional elites (number of *Jinshi*).

Following the same logic as in Subsection B, we also attempt to rule out alternative explanations such as social capital or superstition by controlling for clan temples and current temples, and by restricting the analysis to prefectures occupied by the Taiping troops. As shown in columns 3-5 in Table 5, the 1820 temple effects are robust to the inclusion of clan temples and contemporary temples, but disappear when the sample is restricted to the occupied prefectures. Again, these patterns taken together constitute strong evidence supporting the TDM mechanism over other confounding explanations. Combined together, these patterns suggest that the TDM, rather than alternative socio-economic or cultural differences, drove the differential trends in elite formation.

Why might the TDM improve elite human capital formation? One straightforward channel is that since more schools were constructed, more students were enrolled in modern schools, and thus there was a larger pool from which elites could emerge. In addition to this "quantity" explanation, another hypothesis is a "quality" one: since temple assets were used not only to construct schools, but also to finance students and teachers, the TDM may also have cultivated elites by increasing the average resources enjoyed by each enrolled student. We test this quality hypothesis by regressing the education budget per student on the average number of temples, again using a DiD model. As shown in

[12] Since some of the existing primary school students might also benefit from the education expansion caused by the TDM, there might also be a minor effect of temples on top university enrollment shortly before 1920, but we expect that the magnitude of such effects should be much smaller than the full effect we see after 1920.

Table 6, areas with more temples had a higher education budget per student, indicating that the quality of education was also better.

5. Political Economic Conditions for Secularization

In this section, we investigate the political-economic conditions that can enable a traditional society to secularize its religious assets for modernization. By examining historical records on the implementation of the TDM, we hypothesize that there are two pre-conditions critical for "modernization through secularization": (1) in order to effectively appropriate local religious assets, the state needs to be strong relative to the local religious sector; (2) in order to prevent the state from capturing the confiscated religious assets and to ensure that the resources are actually used to support modernization, the presence of a strong civil society is also essential. We test these two hypotheses empirically using our TDM data.

A. Qualitative Evidence on the Implementation of the TDM

To understand the process of secularizing temple assets, we investigated various historical archives documenting cases of TDM enforcement across the country.

The first step of the TDM required that the local governments could effectively confiscate temple assets, including both relatively visible objects such as buildings and lands, as well as less observable wealth like silver and bandars notes. Since the central government allowed the local governments to confiscate as many temple assets as they could, the capacity of the local government, relative to the strength of the local religious sector, became the main binding constraint for the proportion of temple assets that each prefecture city was able to seize.

Specifically, when local governments first attempted to confiscate temple assets in the name of the TDM, local religious leaders would try to fight back, typically by filing lawsuits against the local governments for misconduct during the enforcement of the TDM. For example, as summarized in Appendix Table E1, around 1915, in several prefecture cities across Hunan province, local religious leaders sued the local government officials for various reasons, including selling temple-owned lands for private benefit; leveraging the help of local gangsters to rob the temples; and misusing the appropriated temple assets for purposes other than school construction (such as setting up factories). In these cases, the local religious leaders were well organized and hired strong legal teams, while the local governments were still largely inexperienced with the modern judicial system that had been

introduced only three years earlier. As a result, the central government ruled largely in favor of the local temples, and required the local governments to "re-examine their inappropriate behaviors during the TDM." In contrast, as also shown in Appendix Table E1, in regions with stronger local state capacity, such as Shanghai and Jiangsu, the local governments ended up winning in such lawsuits and successfully confiscated temple assets.

Another type of resistance from local religious leaders was the organization of local religious followers to protect temple assets by force, either through violent protests or direct conflicts with the schools and local governments. For instance, as reported by *Shun Pao*, the leading newspaper at the time, in August 1915, when the Shanghai government required a major Buddhist temple to clear its Buddhist statues and be converted into a school, more than 2000 local Buddhists organized themselves and committed acts of protest in the area. After a month of heated confrontations between the local government and the protesting Buddhists, police officers were sent to the area equipped with guns; they arrested the organizers of the protest, which ended the local temple's resistance to the TDM.[13]

Once the local governments had successfully confiscated temple assets, the second step of the TDM was to ensure that the appropriated assets would actually be used to support local modern education, rather than being captured by the local politicians or being used for other purposes. Such "checks and balances" for local fiscal spending often came from the local elites, who have traditionally been an important component in China's local governance system. The local elites, typically those who had succeeded in the regional civil service exams, were well-respected for their pivotal roles in the self-governance of local communities. As explained in Chang (1955), one of the important roles of the local elites was to serve as mediators between the formal bureaucratic system and the local residents, which sometimes included negotiating with the government while representing the interests of the residents.

In the enforcement of the TDM, the local elites made significant contributions in various ways, including sitting on the board of trustees of the local modern schools, setting up modern education committees (*Jiaoyu Hui*), and sometimes serving as principals in the local modern schools (Su, 2007). In these roles, the local elites needed to lobby the local governments to secure sufficient funding for the schools, mostly by ensuring that the confiscated temple assets were indeed fully invested in modern education, as required by the central government.

[13] *Shun Pao*, August 19, 1915; August 20, 1915; October 31, 1915

Guided by the qualitative evidence on the two steps of TDM enforcement, we hypothesize that there were two pre-conditions that determined the effectiveness of secularizing temple assets for modern education: first, strong state capacity was needed to confiscate temple assets; and second, a strong civil society was required to prevent elite capture of the confiscated assets.

B. Quantitative Evidence on the Determinants of Secularization

In this subsection, we examine the two hypotheses empirically.

We measure local state capacity using the fluctuation of local crop prices. As discussed in Shiue (2004) and Jia (2014), one of the most important functions for local governments in historical China was to stabilize local crop prices, which helped prevent potential conflicts and revolts in the local areas. Because this function was so important, it can be compared between regions.[14] Leveraging detailed prefectural monthly crop price data between 1902 and 1911, we estimate the standard deviation of local crop price, and use it to proxy for local state capacity: the larger the standard deviation, the weaker the local government.

To measure the strength of the local civil society, we digitize each prefecture's quota for *Shengyuan* (passing) the civil service exam system. As discussed in Hao et al. (2019), after obtaining *Shengyuan* status, fewer than 5% of exam takers could further obtain a higher status (*Juren* or *Jinshi*), and thus the majority of *Shengyuan* end up as local elites in their home prefectures. It is estimated that *Shengyuan* accounted for only 3% of the male population, and the average income of a *Shengyuan* was 6 times that of a commoner (Chang , 1955). These local elites were highly respected by both local residents and local bureaucrats, and could exert substantial influence in the local governance process. Their social status was strengthened by several privileges, including exemptions from taxes, as well as voting rights in the Late Qing constitutional reform. We thus measure a prefecture's strength in civil society by calculating its average quota for *Shengyuan* during the Qing dynasty.

To test our two hypotheses, we split the baseline DiD sample into four categories: "low state capacity and weak civil society;" "low state capacity and strong civil society;" "high state capacity and weak civil society;" and "high state capacity and strong civil society."

[14] To smooth price shocks and food-supply fluctuations, a prominent institution used in the Qing dynasty (1644–1911) was a national system of state granaries. Local authorities at the provincial and sub-provincial levels were required to create granaries and hold crop reserves. In years when disaster relief was needed, local officials were supposed to sell the granary stocks at reduced prices or distribute grain to the poor.

We hypothesize that the fourth category should be the most effective in transforming religious assets into modern human capital. Specifically, a prefecture is considered as having "low state capacity" if its deviation in grain price is above the median value, and *vice versa*; a prefecture is considered as having a "strong civil society" if its *Shengyuan* quota is above the median value, and *vice versa*.

In Table 7, we estimate a DiD model separately for each subsample. As we can see, if either the state or the civil society was weak (or both), the initial stock of temple assets barely predicts the construction of schools after the initiation of the TDM, suggesting that the TDM was not effectively implemented in these areas. In stark contrast, in regions where both state capacity and civil society were strong, the initial stock of temples is significantly and positively correlated with school construction during the TDM era. These results are highly consistent with our hypothesized pre-conditions for secularization.

6. Economic Significance and Long-Run Persistence

In this section, we discuss the significance of the TDM in both the short and long run. In Subsection A, we conduct a simple back of the envelope calculation to understand the contribution of the TDM to China's overall modernization of human capital. In Subsection B, we investigate the persistence of the TDM effects in the long run.

A. Economic Significance of the TDM

Our baseline DiD model suggests that, by 1930, one additional unit of average temple stock (as measured by the number of landmark temples per 10,000 residents) had led to about 25 additional primary schools per 10,000 residents. As shown in Table 1, the average prefecture had 0.14 landmark temples per 10,000 residents, and had an average population of around 1.74 million. Given that there were 264 prefectures, assuming that the treatment effect is linear, a simple calculation suggests that nearly 0.16 million primary schools were constructed because of the TDM.[15] This is about 64% of the total number of modern primary schools in China in 1930.

To corroborate our calculation, we compare our estimates to the qualitative records documented in existing historical studies. Specifically, Xu (2010) investigated various county gazetteers during the TDM period; for eight counties, he was able to accurately count both the total number of modern primary schools and the number of primary schools built using temple assets. As summarized in Appendix Table A1, during the TDM

[15] 28 * 0.14 landmark temples per 10,000 residents * 1.54 million * 100 * 264 prefectures = 159372

era, these eight counties built 758 modern primary schools in total, among which 535 (71%) were constructed using temple assets.

While it is difficult to speak to the representativeness of the eight counties summarized in Table A1, the fact that these two different approaches lead to quantitatively similar conclusions is reassuring: based on existing evidence, both qualitative and quantitative, the TDM accounted for 60-70% of modern school construction in China during our sample period.

B. Long-Run Persistence of the TDM Impacts

In this subsection, we investigate whether the TDM's positive impacts on modern human capital accumulation have persisted to the present. As explained in detail in Section 3, we match a county-level contemporary (year 2000) socioeconomic dataset with our historical prefecture-level panel dataset. By using this merged dataset, we can estimate the following equation:

$$Y_{ip} = \alpha * Temple_i + X_i' * \beta + \mu_p + \varepsilon_{ip} \quad (4)$$

where Y_{ip} is the outcome of interest for county i (in province p) in 2000, $Temple_i$ stands for the average number of temples in 1820 in the prefecture to which county i belongs, X_i' is a vector of the county-level control variables, μ_p is the province fixed effect, and ε_i is the error term.

As shown in Table 8, counties with higher average stocks of temples in 1820 had significantly higher average years of schooling, literacy rates, and per capita expenditure on culture and education in 2000. On average, a 1 S.D. increase in the average number of temples in that prefecture is associated with the average years of schooling in that county increasing by 0.1 years, the illiteracy rate dropping by 6%, and per capita expenditure on culture and education rising by about 5 Yuan. These results are robust to the inclusion of rich historical control variables. Specifically, one might be concerned that the initial stock of temples is correlated with later Protestant activities, which directly affected the modernization of China (Bai and Kung, 2015; Chen et al., 2013). To address this confounder, we control for the average number of vicars and the average number of churches, and the main results remain unchanged.

To deal with the concern that our findings might be driven by omitted variables that are correlated with the number of temples in 1820, such as superstition, social capital, culture, etc., we follow the same logic as in the previous sections to control for the numbers of clan temples in 1820, and the number of religious temples in 2006. As shown in Table

A6, controlling for these variables has no substantial impact on the coefficient for temples, again supporting our proposed TDM mechanism over alternative explanations.

We also study the persistence of elite human capital. In Table A7 in Appendix A, we use the number of alumni of the top two universities between 2006 and 2012 as the outcome variable, to investigate the persistence of elite human capital. We find that the number of temples in 1820 has no predictive power for today's elite human capital, despite the fact that they led to the emergence of more modern elites in the first half of the twentieth century. One potential explanation for the lack of persistence of elite human capital is that, since the 1990s, China's quality educational resources have become much more concentrated in the large cities and provincial capitals, making it increasingly difficult for smaller cities to retain high quality teachers and students and thereby to produce top university alumni. As a result, even if the TDM left a legacy of high quality educational infrastructure or a legacy of valuing education and knowledge, both channels for persistence could be largely eliminated by the massive regional redistribution of quality resources and top students. As a result, we are unable to empirically detect the persistence of elite human capital in the local areas.

7. Conclusion

In this study, we combine various historical datasets to document a novel natural experiment in early 20th century China – the Temple Destruction Movement – in which local governments were encouraged to confiscate temple assets to promote modern education.

We show that the initial average stock of temples was not correlated with various measures of human capital and economic development before the TDM started. After the TDM, regions with higher stocks of temple assets obtained higher mass human capital (constructing more schools, enrolling more students) and elite human capital (producing more top university alumni).

In the long run, we present evidence that the extra modern human capital generated by the TDM persists into the 21st century: regions with higher initial average stocks of temples in 1820 still had higher average years of schooling, literacy rates, and per capita expenditure on culture and education in 2000. However, elite human capital, as measured by students attending the top two universities, does not persist at all.

Further investigations into the underlying mechanisms shed light on the political-economic conditions that enabled the TDM: a strong local government was needed to

appropriate assets from the religious sector, and a strong civil society was also crucial to ensure that the state actually spent the secularized assets on modernization. Our results are robust to the use of various alternative datasets and econometric specifications. Several competing explanations are also discussed and ruled out.

The findings of this study suggest that investment in modern education could have significant and persistent positive effects on modern human capital accumulation, which could help transform a traditional economy from stagnation to sustained growth in the medium term, and lead to persistent economic prosperity in the long run. The persistence of these effects suggests strong intergenerational spillovers in human capital investment, which should be taken into consideration when making related policy decisions.

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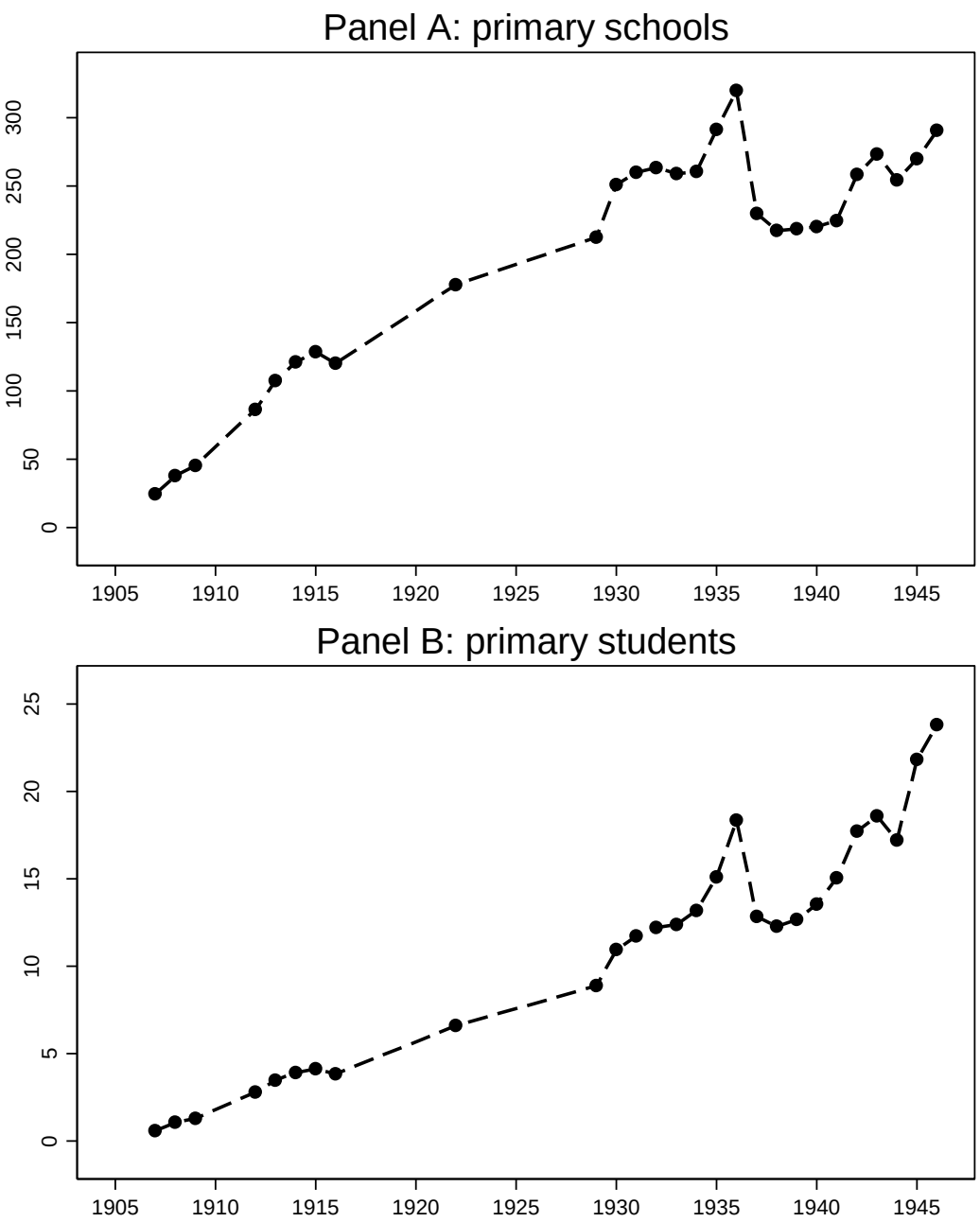
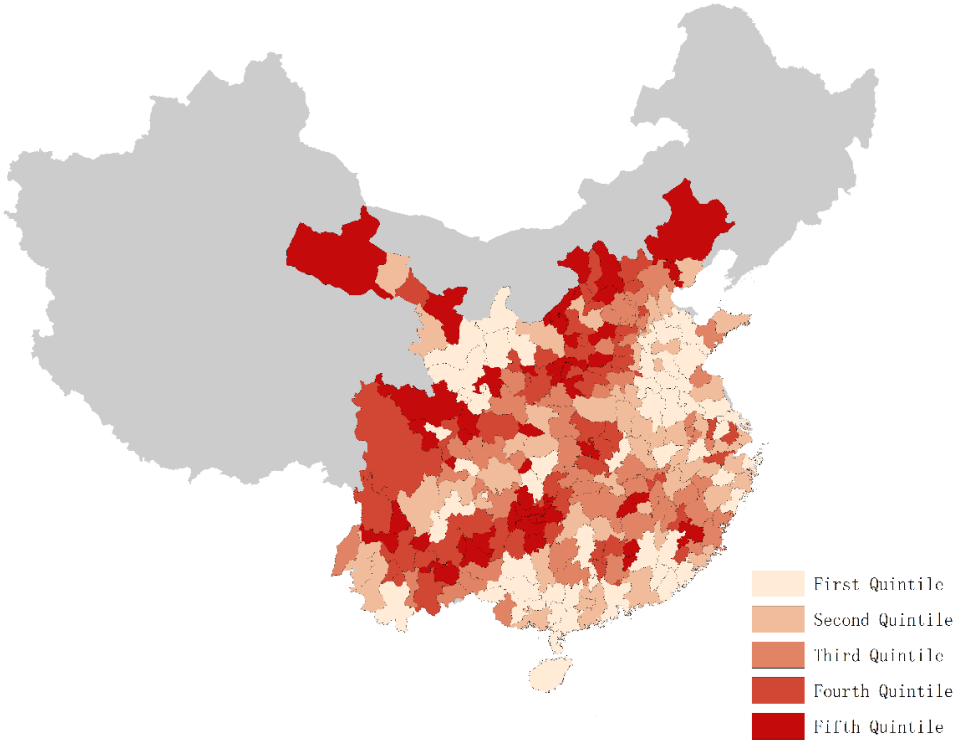
Figure 1. Total Number of Primary Schools and Students between 1907 and 1946



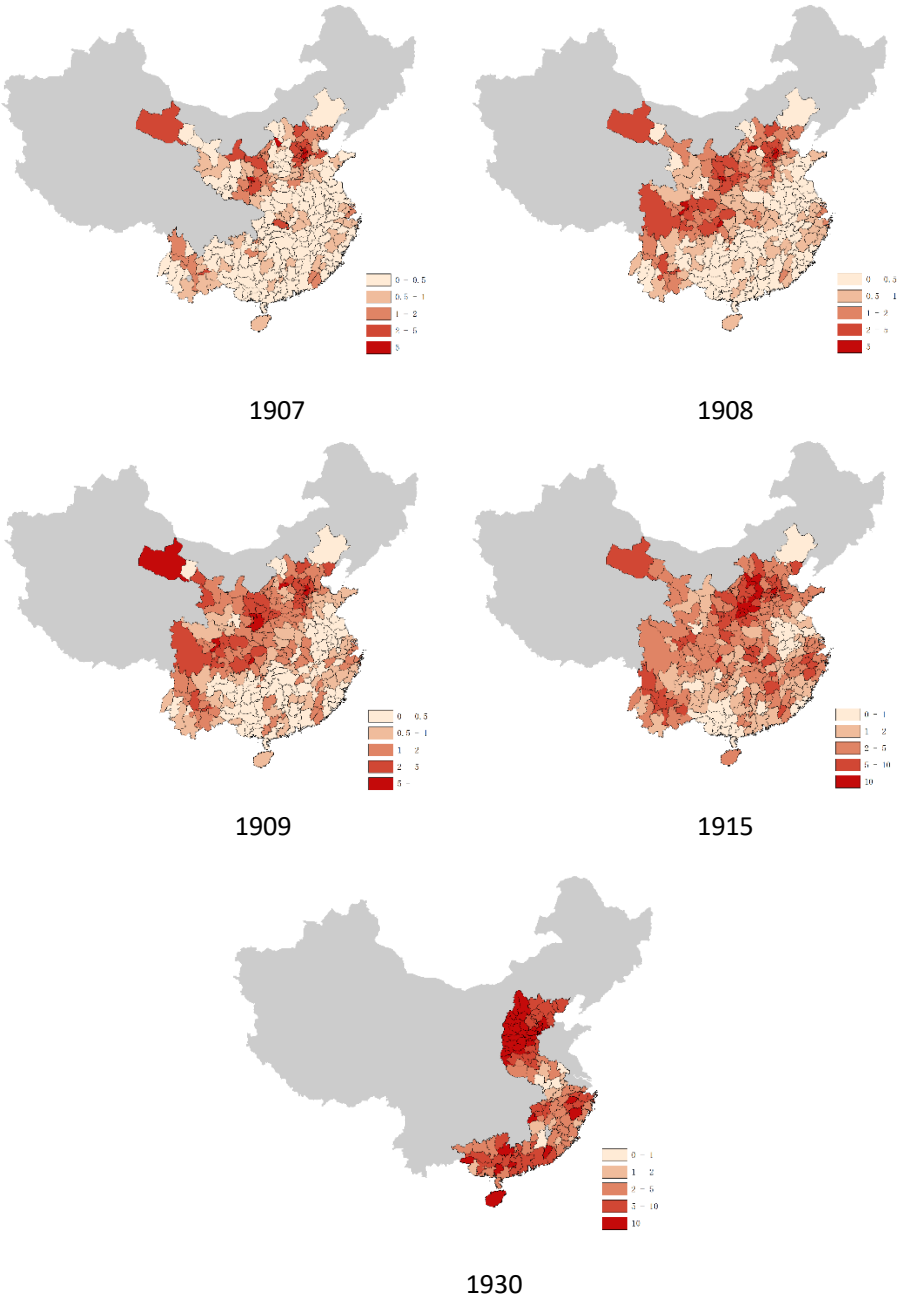
Notes: This figure plots the overall trend of primary school construction and primary school student enrollment in early 20th century China.

Figure 2. Spatial Distribution of Average Temple Stock before TDM



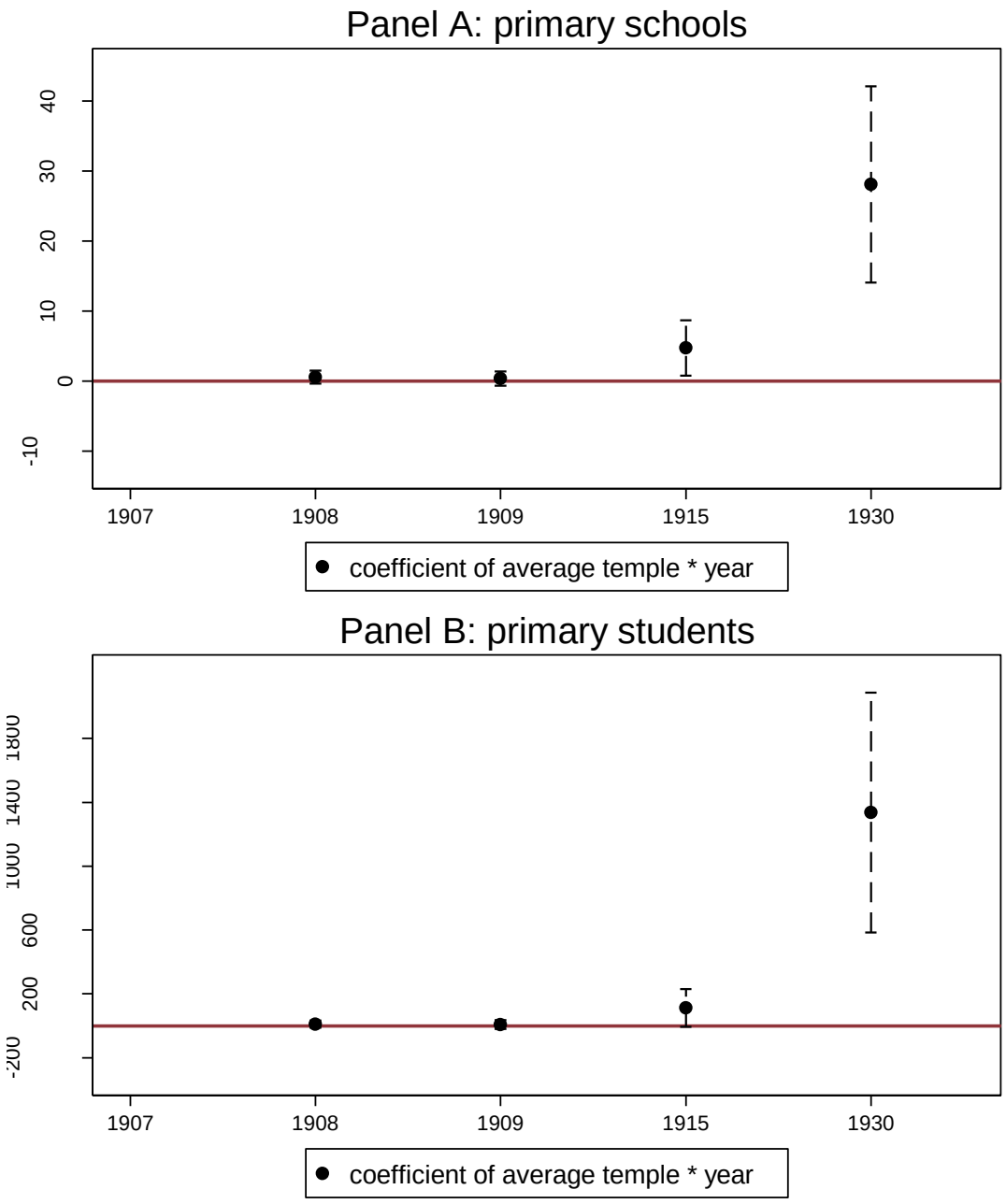
Notes: This map plots the average spatial distribution of temples in China in 1820.

Figure 3. Spatial Distribution of Average Number of Primary Schools by Year (1907-1930)



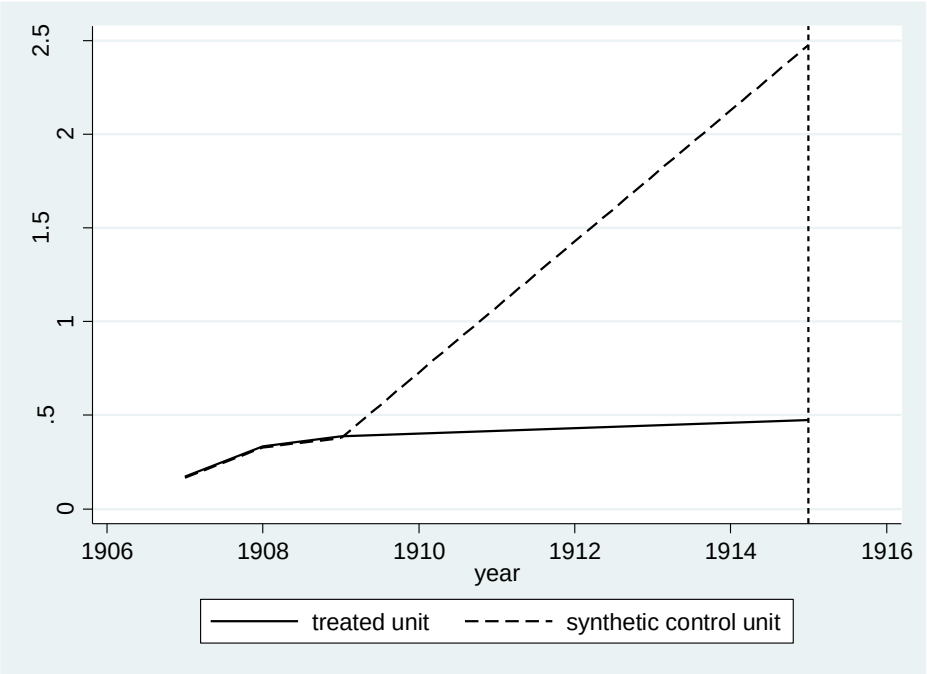
Notes: This map plots the average spatial distribution of primary schools in China in 1907, 1908, 1909, 1915, and 1930.

Figure 4. Dynamic Impacts of Average Number of Temples on Average Numbers of Primary Schools and Students (1907-1930)



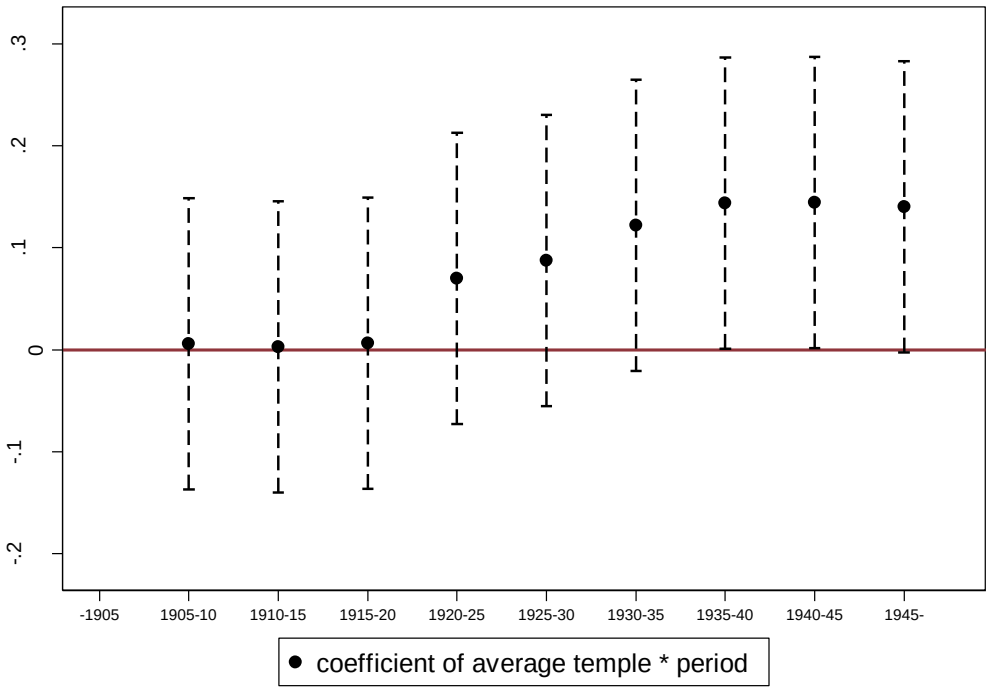
Notes: This figure plots the dynamic impacts of the initial average stock of temples on primary school construction and primary student enrollment.

Figure 5. Synthetic Control Analysis of *Rehe* Prefecture



Notes: This figure visualizes the synthetic control analysis for school construction in *Rehe* prefecture, had it been able to implement the TDM.

Figure 6. The Dynamic Impacts of Average Number of Temples on Top University Alumni (1900-1950)



Notes: This figure plots the dynamic impacts of the initial average stock of temples on the appearance of top university students.

Table 1. Summary Statistics

Variables	Variable Definition	Sources	Obs.	Mean	S.D.
Prefectural-level Panel Data of Modern Education and Temple Assets					
Average # Primary Schools	# of primary schools / pop in 1910	1, 5	1152	2.57	4.41
Average # Primary Students	# of primary students / pop in 1910	1, 5	1152	88.65	172.80
Average # Temples	# of temples / pop in 1820	2, 5	264	0.14	0.13
Average # Temples in 1776	# of temples in 1776's source / pop in 1820	3, 5	264	0.95	0.95
Average # Temples in 2006	# of temples in 2006 / pop in 1820	4, 5	264	0.64	1.71
Average # Clan Temple	# of clan temples / pop in 1820	2, 5	264	0.35	1.11
1820 Population	10,000	5	264	143.68	128.69
1910 Population	10,000	5	264	154.32	141.54
1953 Population	10,000	5	264	196.78	181.08
Area	square km	6	264	15914.78	19272.74
Average # Mountains	# of mountains / Area	2, 5	264	0.14	0.13
Average # Traditional Schools	# of traditional schools / pop in 1820	2, 5	264	0.13	0.09
Average # *Jinshi*	# of civil exam graduates / pop in 1910	7, 5	264	0.63	0.88
Average # Civil Exam Quota	civil exam quotas in prefecture level / pop in 1910	8, 5	264	0.93	0.81
High Grain Price	S.D. of high grain price in 1902-1911	9	256	1.40	1.06
Low Grain Price	S.D. of low grain price in 1902-1911	9	257	1.09	1.07
Average # Charity Organization	# of charity organizations / pop in 1910	10, 3	264	0.11	0.21
Average # Factory	# of modern factories in 1916 / pop in 1910	11, 3	264	0.02	0.12
Average Tax Burden	Amount of tax burden in 1850 / pop in 1851	12, 3	264	1203.05	1492.22
Importance Level	=0,1,2,3,4	13	264	2.34	1.14
Caloric Suitability Index	average caloric suitability index post 1500	14	264	1905.24	511.59
Treaty port	= 1 if the prefecture was a treaty port	15	264	0.19	0.39
Prefecture-level Panel Data of Top University Alumni and Oversea Students					
Average Top University Alumni	Top University Alumni / population	16, 3	2,640	0.03	0.05
Contemporary County-level Data of Economic Development and Human Capital					
Average Years of Schooling		17	1,975	7.15	1.12
Literacy Rate (%)		17	1,975	88.30	9.45
CE Expenditure per Capita	Culture and Education Expenditure per Capita	18	1,974	95.03	46.97
Average PKU and THU student	# of PKU and THU students in 2006-2011 / pop	19	1,945	0.08	0.21

Data Sources: 1: Statistical Chart of Education (1907-1934). 2: Imperial Encyclopedia of the Qing Empire (1842). 3: Imperial Collection of Books of Ancient and Modern Times (1776). 4: Jiang, Wu. (2006), China BGIS (Buddhist GIS), based on Gui Weibing (2006). 5: Ge, Jianxiong et al. (2000), China Population History. 6: Harvard Yenching Institution (2007), CHGIS, Version 4. 7: Jiang, Qingbai (2007), Official Records of *Jinshi* in Qing Dynasty. 8: Kun, Gang et al. ([1899], 1991), Imperially Established Institutes and Laws of the Great Qing Dynasty. 9: Wang, Yejian. (2013), The Database of Grain Prices in the Qing Dynasty. 10: Wang, Daxue. (2013), Charity Organizations of the Qing Dynasty, Version 1. 11: Zhang, Yufa. (1987-1989), Modern Factories in Late Qing Dynasty and Early Republic Era. 12: Liang, Fangzhong. (1981), Statistics on China's Historical Population, Cultivated Land and Land Tax. 13: Liu, Cheng-yun (1993), Chong, Fan, Pi, and Nan: An Exploration of the Ranking of Qing Administrative Units. 14: Galor and Özak (2016), Caloric Suitability Indices (CSI). 15: Yan, Zhongping (1955), Selected Statistical Materials on Modern Chinese Economic History. 16: Books of Peking University and Tsinghua University. 17: National Bureau of Statistics (2000), The Compiled Statistics of the Fifth National Population Census. 18: Statistical Materials of Public Finance of Cities and Counties (2000). 19: Administrative Records of Peking University and Tsinghua University.

Table 2. TDM and Primary School Construction

Dependent Variable:	**Average # Primary Schools**			
	(1)	(2)	(3)	(4)
Average Temple*1907				-0.402
				[0.392]
Average Temple*1908	0.782	0.583	0.557	0.251
	[0.413]*	[0.460]	[0.461]	[0.659]
Average Temple*1909	0.740	0.401	0.354	0.047
	[0.480]	[0.524]	[0.524]	[0.692]
Average Temple*1915	6.128	5.245	4.724	4.417
	[1.943]***	[2.040]**	[2.022]**	[1.995]**
Average Temple*1930	37.772	29.055	28.101	28.607
	[7.512]***	[7.194]***	[7.116]***	[7.486]***
Population*Year FE	NO	YES	YES	YES
Area*Year FE	NO	YES	YES	YES
Administrative Characteristics*Year FE	NO	YES	YES	YES
Treaty Port*Year FE	NO	YES	YES	YES
Caloric Suitability Index*Year FE	NO	YES	YES	YES
Average *Jinshi* Number*Year FE	NO	NO	YES	YES
Year FE	YES	YES	YES	YES
City FE	YES	YES	YES	NO
Num. of Prefecture	264	264	264	264
Obs.	1,152	1,152	1,152	1,152
R-squared	0.745	0.772	0.776	0.578

Notes: This table reports estimation results of equation (1). Each observation is a prefecture in year 1907, 1908, 1909, 1915 or 1930. Average Primary School is defined as the number of primary schools per 10,000 people in prefecture i in year τ. Average Temple is defined as the number of temples per 10,000 people in prefecture i in year τ. In columns 1, 2 and 3, we control different historical variables, including the dynamic impacts of Population, Area, Average *Jinshi* Number, Importance Level, Treaty Port and Caloric Suitability Index post 1500. In column 4, we exclude prefecture fixed-effects and include the interaction term of Average Temple Assets*1907. Coefficients are reported with standard errors clustered to prefecture-level in brackets. ***, **, and * indicate significance at 1%, 5% and 10% levels.

Table 3. TDM and Students Enrolled in Modern Schools

Dependent Variable:	**Average # Primary Students**			
	(1)	(2)	(3)	(4)
Average Temple*1907				-10.480
				[7.341]
Average Temple*1908	17.944	10.714	10.214	-0.658
	[10.469]*	[11.283]	[11.234]	[14.856]
Average Temple*1909	19.026	8.649	6.826	-4.046
	[13.053]	[13.977]	[13.915]	[16.524]
Average Temple*1915	155.894	127.949	111.357	100.485
	[57.788]***	[60.446]**	[59.552]*	[58.992]*
Average Temple*1930	1,611.914	1,383.815	1,335.820	1,347.779
	[343.346]***	[381.219]***	[381.075]***	[380.499]***
Population*Year FE	NO	YES	YES	YES
Area*Year FE	NO	YES	YES	YES
Administrative Characteristics*Year FE	NO	YES	YES	YES
Treaty Port*Year FE	NO	YES	YES	YES
Caloric Suitability Index*Year FE	NO	YES	YES	YES
Average *Jinshi* Number*Year FE	NO	NO	YES	YES
Year FE	YES	YES	YES	YES
City FE	YES	YES	YES	NO
Num. of Prefecture	264	264	264	264
Obs.	1,152	1,152	1,152	1,152
R-squared	0.766	0.787	0.792	0.666

Notes: This table reports estimation results of equation (2). Each observation is a prefecture in year 1907, 1908, 1909, 1915 or 1930. Average Primary Student is defined as the number of primary students per 10,000 people in prefecture i in year τ. Average Temple is defined as the number of temples per 10,000 people in prefecture i in year τ. In columns 1, 2 and 3, we control different historical variables, including the dynamic impacts of Population, Area, Average *Jinshi* Number, Importance Level, Treaty Port and Caloric Suitability Index post 1500. In column 4, we exclude prefecture fixed-effects and include the interaction term of Average Temple Assets*1907. Coefficients are reported with standard errors clustered to prefecture-level in brackets. ***, **, and * indicate significance at 1%, 5% and 10% levels.

Table 4. TDM and Primary Schools: Controlling for Clan Temples and Current Temples

Dependent Variable:	Average # Primary Schools			Average # Primary Students		
	(1)	(2)	(3)	(4)	(5)	(6)
Average Temple*1908	0.791	0.531	0.484	16.612	9.658	12.319
	[0.502]	[0.454]	[0.778]	[12.159]	[10.987]	[22.711]
Average Temple*1909	0.602	0.350	1.147	13.626	6.699	16.890
	[0.564]	[0.525]	[1.001]	[14.956]	[13.934]	[33.792]
Average Temple*1915	4.989	4.759	2.686	119.075	112.237	-27.316
	[2.061]**	[2.035]**	[4.506]	[60.482]*	[59.968]*	[184.857]
Average Temple*1930	28.467	29.706	9.943	1,336.985	1,384.971	169.918
	[7.366]***	[6.670]***	[11.958]	[383.856]***	[355.216]***	[653.510]
Average Clan Temple*1908	-0.368			-9.870		
	[0.271]			[8.011]		
Average Clan Temple*1909	-0.411			-11.070		
	[0.270]			[8.015]		
Average Clan Temple*1915	-0.462			-13.810		
	[0.311]			[9.349]		
Average Clan Temple*1930	-0.864			3.894		
	[1.759]			[76.276]		
Average Temple in 2006*1908		0.021			0.237	
		[0.079]			[2.232]	
Average Temple in 2006*1909		-0.014			-0.417	
		[0.081]			[2.293]	
Average Temple in 2006*1915		-0.073			-1.949	
		[0.105]			[3.384]	
Average Temple in 2006*1930		-2.041			-62.552	
		[0.666]***			[29.889]**	
Controls*Year FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
City FE	YES	YES	YES	YES	YES	YES
Num. of Prefecture	264	264	46	264	264	46
Obs.	1,152	1,152	219	1,152	1,152	219
R-squared	0.776	0.785	0.794	0.792	0.798	0.805

Notes: This table reports estimation results of equation (1) and (2). Each observation is a prefecture in year 1907, 1908, 1909, 1915 or 1930. Average Primary School is defined as the number of primary schools per 10,000 people in prefecture i in year τ. Average Primary Student is defined as the number of primary students per 10,000 people in prefecture i in year τ. Average Temple is defined as the number of temples per 10,000 people in prefecture i in year τ. We control different historical variables, including the dynamic impacts of Population, Area, Average *Jinshi* Number, Importance Level, Treaty Port and Caloric Suitability Index post 1500. In columns 1 and 4, we control the dynamic impacts of the Average Clan Temple. In column 2 and 5, we control the dynamic impacts of the Average Temple in 2006. In columns 3 and 6, we keep only the prefectures which were occupied by the Taiping Rebellion Army. Coefficients are reported with standard errors clustered at prefecture-level in brackets. ***, **, and * indicate significance at 1%, 5% and 10% levels.

Table 5. Effects of TDM on Elite Human Capital

Dependent Variable:	**Average # Top 2 University Alumni**				
	(1)	(2)	(3)	(4)	(5)
Average Temple*Post	0.231	0.109	0.102	0.113	-0.090
	[0.039]***	[0.036]***	[0.037]***	[0.036]***	[0.223]
Average Clan Temple*Post			-0.005		
			[0.005]		
Average Temple in 2006*Post				0.006	
				[0.003]**	
Population*Year FE	YES	YES	YES	YES	YES
Area*Year FE	YES	YES	YES	YES	YES
Administrative Characteristics*Year FE	YES	YES	YES	YES	YES
Treaty Port*Year FE	YES	YES	YES	YES	YES
Caloric Suitability Index*Year FE	YES	YES	YES	YES	YES
Average *Jinshi* Number*Year FE	NO	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
City FE	YES	YES	YES	YES	YES
Num. of Prefecture	264	264	264	264	46
Obs.	2,640	2,640	2,640	2,640	460
R-squared	0.568	0.640	0.640	0.641	0.902

Notes: This table reports estimation results of equation (3). Each observation is a prefecture in period 1 (-1905) to 10 (1945-). Average Top 2 University Student is defined as the number of Top 2 university (Peking University and Tsinghua University) students per 10,000 people in prefecture i in period τ. Average Temple is defined as the number of temples per 10,000 people in prefecture i in period τ. In columns 1 and 2, we control different historical variables, including the dynamic impacts of Population, Area, Average *Jinshi* Number, Importance Level, Treaty Port and Caloric Suitability Index post 1500. In column 3, we control the dynamic impacts of the Average Clan Temple. In column 4, we control the dynamic impacts of the Average Temple in 2006. In column 5, we keep only the prefectures which were occupied by the Taiping Rebellion Army. Coefficients are reported with standard errors clustered to prefecture-level in brackets. ***, **, and * indicate significance at 1%, 5% and 10% levels.

Table 6. Effects of TDM on Expenditure per Student

Dependent Variable:	**Education Expenditure per Student**		
	(1)	(2)	(3)
Average Temple*1915	7.348	6.421	6.908
	[2.921]**	[5.048]	[5.314]
Average Temple*1930	10.813	12.079	14.279
	[4.225]**	[7.150]*	[7.640]*
Population*Year FE	NO	YES	YES
Area*Year FE	NO	YES	YES
Administrative Characteristics*Year FE	NO	YES	YES
Treaty Port*Year FE	NO	YES	YES
Caloric Suitability Index*Year FE	NO	YES	YES
Average *Jinshi* Number*Year FE	NO	NO	YES
Year FE	YES	YES	YES
City FE	YES	YES	YES
Num. of Prefecture	264	264	264
Obs.	567	567	567
R-squared	0.279	0.345	0.353

Notes: This table reports estimation results of regressing the average education fund per student on the average number of temples. Each observation is a prefecture in year 1909, 1915 or 1930. Average Expenditure per Primary Student is defined as the amount of expenditure per primary student in prefecture i in year τ. Average Temple is defined as the number of temples per 10,000 people in prefecture i in year τ. In columns 1, 2 and 3, we control different historical variables, including the dynamic impacts of Population, Area, Average *Jinshi* Number, Importance Level, Treaty Port and Caloric Suitability Index post 1500. Coefficients are reported with standard errors clustered at prefecture-level in brackets. ***, **, and * indicate significance at 1%, 5% and 10% levels.

Table 7. Conditions for Secularization: State Capacity and Civil Society

Dependent Variable:	**Average # Primary Schools**			
	(1)	(2)	(3)	(4)
State Capacity	**Low**	**Low**	**High**	**High**
Civil Society	**Weak**	**Strong**	**Weak**	**Strong**
Average Temple*Post	3.156	0.083	1.463	13.780
	[2.176]	[2.406]	[1.988]	[3.873]***
Population*Year FE	YES	YES	YES	YES
Area*Year FE	YES	YES	YES	YES
Administrative Characteristics*Year FE	YES	YES	YES	YES
Treaty Port*Year FE	YES	YES	YES	YES
Caloric Suitability Index*Year FE	YES	YES	YES	YES
Average *Jinshi* Number*Year FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
City FE	YES	YES	YES	YES
Num. of Prefecture	73	55	68	68
Obs.	307	249	285	311
R-squared	0.826	0.785	0.873	0.800

Notes: Each observation is a prefecture in year 1907, 1908, 1909, 1915 or 1930. Average Primary School is defined as the number of primary schools per 10,000 people in prefecture i in year τ. Average Temple is defined as the number of temples per 10,000 people in prefecture i in year τ. Post period includes 1915 and 1930. In all columns, we control different historical variables, including the dynamic impacts of Population, Area, Average *Jinshi* Number, Importance Level, Treaty Port and Caloric Suitability Index post 1500. Coefficients are reported with standard errors clustered to prefecture-level in brackets. ***, **, and * indicate significance at 1%, 5% and 10% levels.

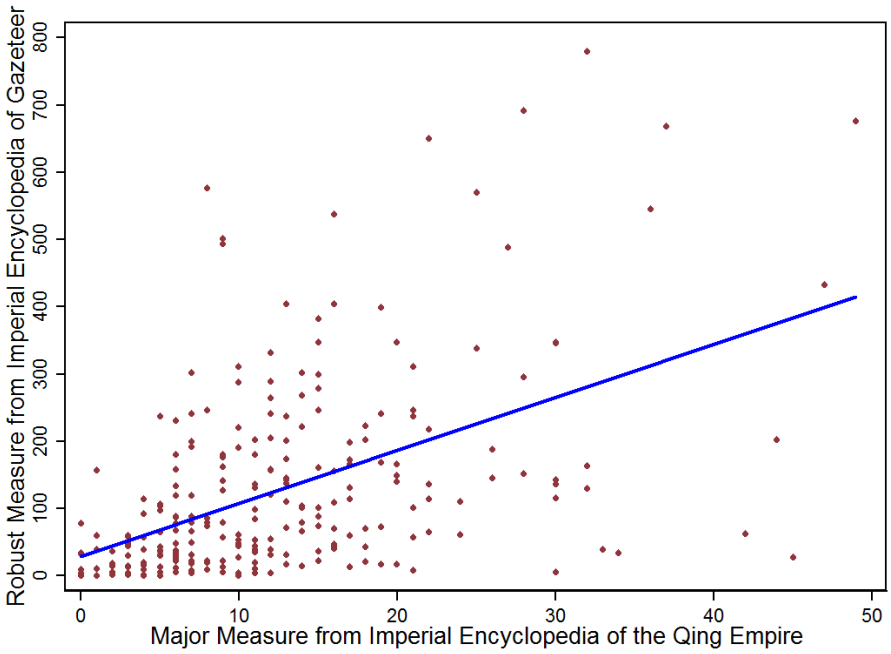
Table 8. Effects of TDM on Long-term Human Capital Accumulation

Dependent Variable:	**Average Years of Schooling**		**Literacy Rates (%)**		**Culture and Education Exp. per capita**	
	(1)	(2)	(3)	(4)	(5)	(6)
Average Temple	1.058	0.818	6.027	4.543	37.002	38.671
	[0.249]***	[0.239]***	[2.174]***	[1.995]**	[9.550]***	[9.321]***
Population in 1820, 2000	YES	YES	YES	YES	YES	YES
Area	YES	YES	YES	YES	YES	YES
Province Dummy	YES	YES	YES	YES	YES	YES
Average *Jinshi* Number	NO	YES	NO	YES	NO	YES
Average Charity Organization	NO	YES	NO	YES	NO	YES
Importance Level	NO	YES	NO	YES	NO	YES
Treaty Port	NO	YES	NO	YES	NO	YES
Caloric Suitability Index Post 1500	NO	YES	NO	YES	NO	YES
Average Factories (1916)	NO	YES	NO	YES	NO	YES
Average Tax Burden (1850)	NO	YES	NO	YES	NO	YES
Average Vicars and Churches	NO	YES	NO	YES	NO	YES
Obs.	1,945	1,744	1,945	1,744	1,944	1,744
R-squared	0.397	0.453	0.366	0.404	0.511	0.598

Notes: This table reports estimation results of equation (4). Each observation is a county. Average Temple is defined as the number of temples per 10,000 people. The baseline controls include the Population in 1820, 2000, Area and Province Dummy. The historical controls include the Average *Jinshi* Number, Average Charity Organization, Importance Level, Treaty Port, Caloric Suitability Index post 1500, Average Factories in 1916, Average Tax Burden in 1850 and Average Vicars and Churches. Coefficients are reported with standard errors in brackets. ***, **, and * indicate significance at 1%, 5% and 10% levels.

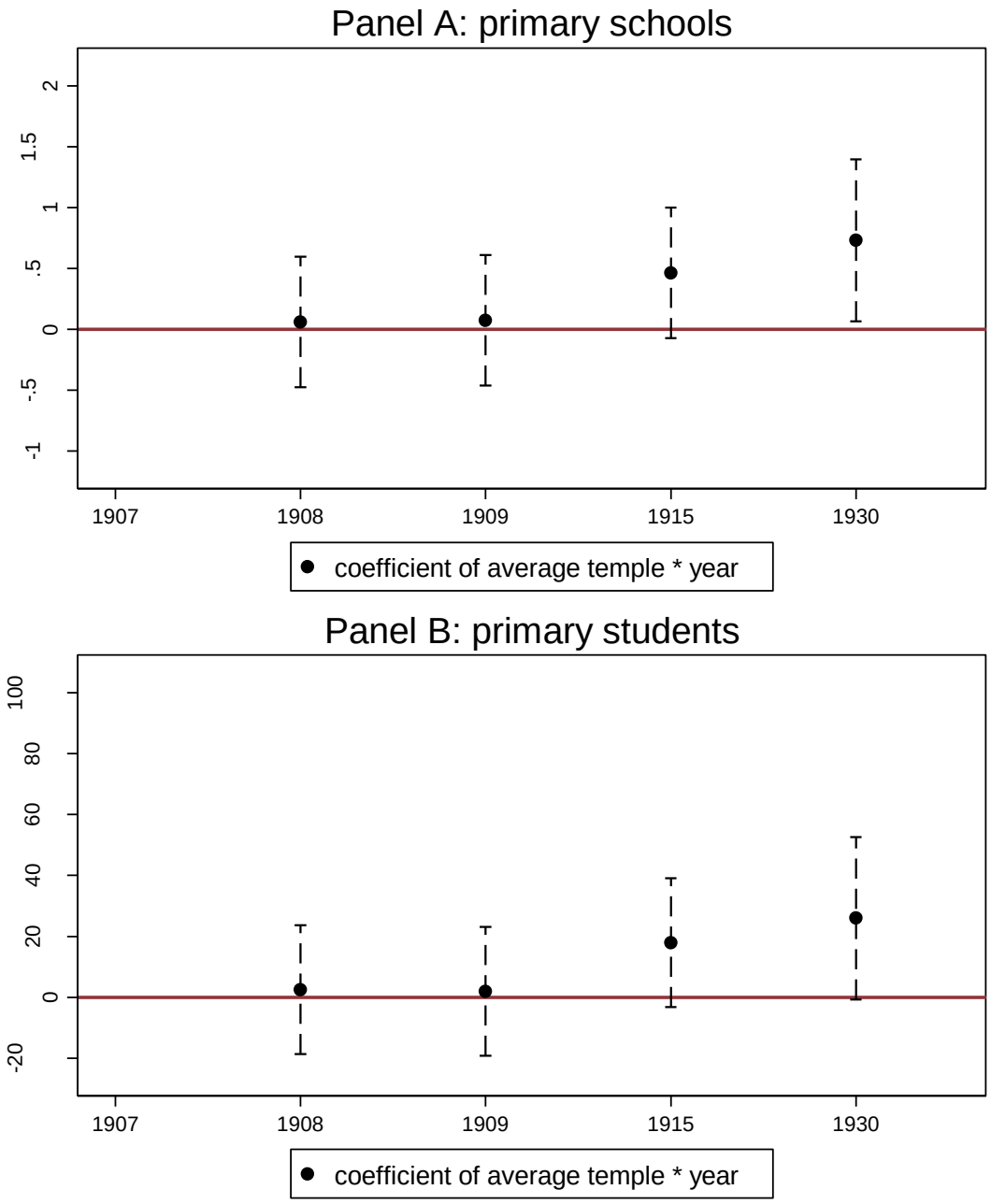
Appendix A

Figure A1. Correlation between Two Measures of Average Number of Temples



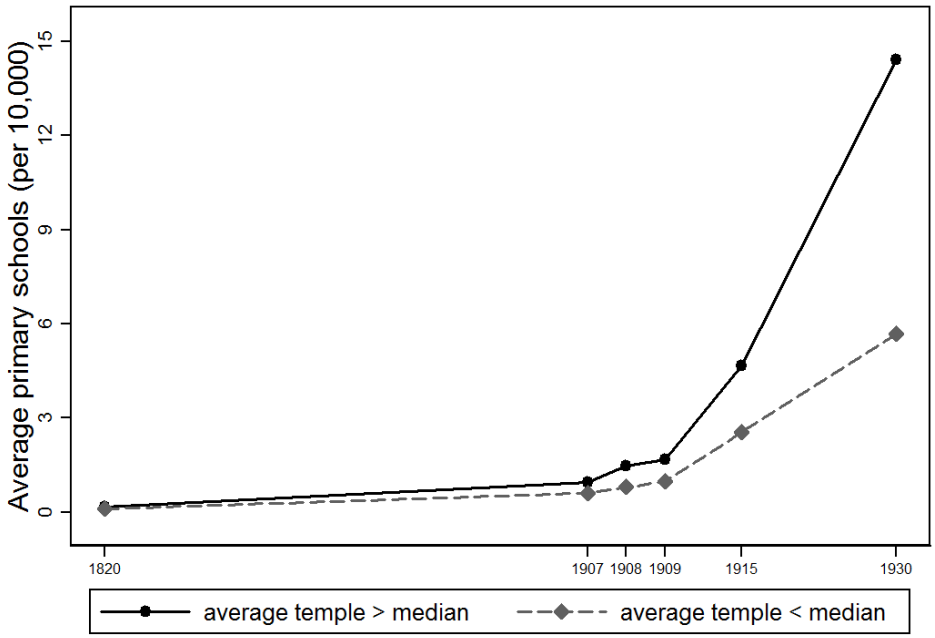
Notes: This figure shows the positive correlation between our preferred measure of the initial stock of temples and the alternative measure.

Figure A2. The Dynamic Impacts of Average Number of Temples on Average Numbers of Primary Schools and Students (1907-1930, With Robust Measure)



Notes: This figure plots the dynamic impacts of the initial stock of average temples on primary school construction and primary student enrollment using the alternative temple measure.

Figure A3. Average Number of Primary Schools between 1820 and 1930 (With Traditional Primary Schools in 1820)



Notes: This figure plots the relative trends of school construction in prefectures with initial stock of temples above the median value, and those below the median value, by also including the traditional primary schools in 1820.

Table A1. Historical Evidence of The Temple Destruction Movement

Year	Province	County	Description	Source
1912-1916	Anhui	Taihe	11 of 21 schools were built in temples.	《安徽省太和县志》 County Gazetteer of Taihe County in Anhui
1912-1916	Henan	Xinyang	38 of 45 schools were built in temples.	《河南省重修信阳县志》 County Gazetteer of Xinyang County in Henan
1933	Jiangsu	Wu	47 of 146 schools were built in temples.	《上海县续志》 County Gazetteer of Wu County in Jiangsu
1912-1916	Shandong	Linyi	All 108 schools were built in temples.	《山东省临沂县志》 County Gazetteer of Linyi County in Shandong
1933	Shandong	Changle	All 150 schools were built in temples.	《山东省昌乐县续志》 County Gazetteer of Changle County in Shandong
1918	Shanghai	Shanghai	46 of 146 schools were built in temples.	《上海县续志》 County Gazetteer of Shanghai County
1912-1920	Shanxi	Yuxiang	All 120 schools were built in temples.	《山西省虞乡新志》 County Gazetteer of Yuxiang County in Shanxi
1920	Zhejiang	Xinchang	15 of 22 schools were built in temples.	《浙江省新昌县志》 County Gazetteer of Xinchang County in Zhejiang

Note: In this table, we compile historical evidence of the Temple Destruction Movement from case studies in Xu (2010).

Table A2. Sources of Education Data (1907-1934)

Year	Region	Source
1907	Nationwide	《光绪三十三年第一次教育统计图表》 The First National Statistical Chart of Education
1908	Nationwide	《光绪三十四年第二次教育统计图表》 The Second National Statistical Chart of Education
1909	Nationwide	《宣统元年第三次教育统计图表》 The Third National Statistical Chart of Education
1915	Nationwide	《中华民国第四次教育统计图表》 The Fourth National Statistical Chart of Education
1916	Nationwide	《中华民国第五次教育统计图表》 The Fifth National Statistical Chart of Education
1919	Jiangsu	《江苏六十县八年度教育状况表》 The 1919 Jiangsu Statistical Chart of Education
1921	Guangdong	《广东教育统计图表民国十年度》 The 1921 Guangdong Statistical Chart of Education
1922	Guangdong	《广东教育统计图表民国十一年度》 The 1922 Guangdong Statistical Chart of Education
1923	Guangdong	《广东教育统计图表民国十二年度》 The 1922 Guangdong Statistical Chart of Education
1923	Zhili	《直隶教育统计表民国十二年度》The 1923 Zhili Statistical Chart of Education
1925	Zhili	《直隶教育统计表民国十四年度》 The 1925 Zhili Statistical Chart of Education
1924	Shanxi	《山西省第九次教育统计民国十三年》 The 1924 Shanxi Statistical Chart of Education
1925	Zhejiang	《中华民国十四年度浙江省教育统计图表》 The 1925 Zhejiang Statistical Chart of Education
1927	Zhejiang	《中华民国十六年度浙江省教育统计图表》 The 1927 Zhejiang Statistical Chart of Education
1929	Zhejiang	《中华民国十八年度浙江省教育统计图表》 The 1927 Zhejiang Statistical Chart of Education
1928	Hebei (Zhili)	《河北省各县普通教育概览》 The 1928 Hebei Statistical Chart of Education
1929	Hebei (Zhili)	《河北省教育统计概要民国十八年》 The 1929 Hebei Statistical Chart of Education
1930	Fujian	《福建省教育统计民国十九年度》 The 1930 Fujian Statistical Chart of Education
1931	Henan	《民国二十年河南省教育统计图表》 The 1931 Henan Statistical Chart of Education
1931	Anhui	《安徽省教育统计民国二十年度》 The 1931 Anhui Statistical Chart of Education
1932	Anhui	《安徽省教育统计民国二十一年度》 The 1932 Anhui Statistical Chart of Education
1933	Anhui	《安徽省教育统计民国二十二年度》 The 1933 Anhui Statistical Chart of Education
1934	Anhui	《安徽省教育统计民国二十三年度》 The 1934 Anhui Statistical Chart of Education
1932	Jiangxi	《江西省教育统计民国二十一年度》 The 1932 Jiangxi Statistical Chart of Education
1933	Jiangxi	《江西省各县教育概况二十二年度》 The 1933 Jiangxi Statistical Chart of Education
1932	Jiangsu	《民国二十一年度江苏省教育经费统计图表》 The 1932 Jiangsu Statistical Chart of Education
1933	Jiangsu	《民国二十二年度江苏省教育经费统计图表》 The 1933 Jiangsu Statistical Chart of Education
1933	Guangxi	《广西省教育概况统计民国二十二年》 The 1933 Guangxi Statistical Chart of Education
1934	Zhejiang	《浙江省二十三年度教育统计》 The 1934 Zhejiang Statistical Chart of Education
1934	Guangdong	《广东省二十三年度教育概况》 The 1934 Guangdong Statistical Chart of Education
1935	Hebei (Zhili)	《河北省教育概况民国二十四年》 The 1935 Hebei Statistical Chart of Education

Table A3. Orthogonality of the Initial Stock of Temples

Dependent Variable:	**Average *Jinshi* Number**	**Average Exam Quota**	**Average Charity Organization**	**Importance Level**	**Treaty Port**	**Caloric Suitability Index Post 1500**
	(1)	(2)	(3)	(4)	(5)	(6)
Average Temple	0.458	0.736	0.030	0.818	-0.085	-136.333
	[0.424]	[0.384]*	[0.094]	[0.561]	[0.209]	[191.093]
Population	YES	YES	YES	YES	YES	YES
Area	YES	YES	YES	YES	YES	YES
Province Dummy	YES	YES	YES	YES	YES	YES
Obs.	264	264	264	264	264	264
R-squared	0.364	0.389	0.451	0.333	0.211	0.616

Dependent Variable:	**Low Grain Price**	**High Grain Price**	**Average Primary School (1907)**	**Average Primary Student (1907)**	**Average Factories (1916)**	**Average Tax Burden (1850)**
	(7)	(8)	(9)	(10)	(11)	(12)
Average Temple	-0.555	0.200	-0.427	-3.618	0.015	249.523
	[0.435]	[0.404]	[0.571]	[11.004]	[0.064]	[643.247]
Population	YES	YES	YES	YES	YES	YES
Area	YES	YES	YES	YES	YES	YES
Province Dummy	YES	YES	YES	YES	YES	YES
Obs.	257	256	237	237	264	264
R-squared	0.576	0.624	0.376	0.331	0.164	0.489

Notes: This table reports estimation results of balance tests. Each observation is a prefecture. Average Temple is defined as the number of temples per 10,000 people in prefecture i. In columns 1 to 12, we test whether the initial average stock of temples was correlated with various measures of local human capital and development, including the average number of *jinshi*, the average civil exam quota, the average number of charity organizations, the importance level (1-4), the dummy of treaty port, the caloric suitability index post 1500, the low/high values of crop prices, the average number of primary schools and students in 1907, the average number of modern factories, and the per capita local tax revenue. Coefficients are reported with standard errors in brackets. ***, **, and * indicate significance at 1%, 5% and 10% levels.

Table A4. Effects of Average Number of Temples and Other Historical Variables on Primary Schools and Primary Students in 1907-1909

Dependent Variable:	Average Number Primary Schools Constructed in 1907-1909		Average Number Primary Students Enrolled in 1907-1909	
	(1)	(2)	(3)	(4)
Average Temple	0.471	0.120	11.723	1.158
	[0.422]	[0.469]	[11.370]	[11.899]
Area		-0.001		-0.016
		[0.000]**		[0.008]**
Population in 1910		0.000		-0.000
		[0.000]		[0.000]
Average *Jinshi* Number		0.014		0.308
		[0.055]		[1.169]
Treaty Port		-0.175		-3.446
		[0.073]**		[2.016]*
Caloric Suitability Index Post 1500		-0.000		-0.006
		[0.000]		[0.003]*
Average Tax Burden (1850)		0.000		0.000
		[0.000]**		[0.000]**
Average Rice Price (1902-1911)		-0.147		-4.097
		[0.048]***		[1.137]***
Obs.	237	237	237	237
R-squared	0.006	0.070	0.007	0.126

Notes: This table reports estimation results of prefecture-level cross-sectional data. Each observation is a prefecture. Average Primary School Constructed in 1907-1909 is defined as the number of primary schools per 10,000 people constructed in prefecture i in year 1907-1909. Average Primary Student Enrolled in 1907-1909 is defined as the number of primary students per 10,000 people enrolled in prefecture i in year 1907-1909. Average Temple is defined as the number of temples per 10,000 people in prefecture i. In columns 2 and 4, we include different historical variables, including the Population in 1910, Area, Average *Jinshi* Number, Treaty Port, Caloric Suitability Index post 1500, the Average Tax Burden and the Average Rice Price. Coefficients are reported with standard errors in brackets. ***, **, and * indicate significance at 1%, 5% and 10% levels.

Table A5. DID Model: Effects of TDM on Primary Schools and Primary Students,
Controlling for Mountains and Coastal Provinces, and Using Robust Temple Measure

Dependent Variable:	**Average Primary Schools**			**Average Primary Students**		
	(1)	(2)	(3)	(4)	(5)	(6)
Average Temple*1908	0.680	0.483	0.055	12.878	8.463	2.433
	[0.458]	[0.461]	[0.274]	[10.924]	[11.251]	[10.777]
Average Temple*1909	0.501	0.290	0.068	10.240	5.092	1.927
	[0.525]	[0.526]	[0.274]	[13.798]	[13.969]	[10.777]
Average Temple*1915	4.652	4.575	0.514	111.677	114.580	17.895
	[2.096]**	[2.020]**	[0.274]*	[61.453]*	[59.841]*	[10.777]*
Average Temple*1930	28.366	24.442	0.986	1,335.773	1,233.559	25.956
	[7.287]***	[6.654]***	[0.345]***	[384.718]***	[376.323]***	[13.617]*
Population*Year FE	YES	YES	YES	YES	YES	YES
Area*Year FE	YES	YES	YES	YES	YES	YES
Administrative Characteristics*Year FE	YES	YES	YES	YES	YES	YES
Treaty Port*Year FE	YES	YES	YES	YES	YES	YES
Caloric Suitability Index*Year FE	YES	YES	YES	YES	YES	YES
Average *Jinshi* Number*Year FE	YES	YES	YES	YES	YES	YES
Average Mountain*Year FE	YES	NO	NO	YES	NO	NO
Coast Province*Year FE	NO	YES	NO	NO	YES	NO
Year FE	YES	YES	YES	YES	YES	YES
City FE	YES	YES	YES	YES	YES	YES
Num. of Prefecture	264	264	264	264	264	264
Obs.	1,152	1,152	1,152	1,152	1,152	1,152
R-squared	0.776	0.793	0.615	0.792	0.801	0.653

Notes: This table reports estimation results of equation (1) and (2). Each observation is a prefecture in year 1907, 1908, 1909, 1915 or 1930. Average Primary School is defined as the number of primary schools per 10,000 people in prefecture i in year τ. Average Primary Student is defined as the number of primary students per 10,000 people in prefecture i in year τ. Average Temple is defined as the number of temples per 10,000 people in prefecture i in year τ. In all columns, we control different historical variables, including the dynamic impacts of Population, Area, Average *Jinshi* Number, Importance Level, Treaty Port and Caloric Suitability Index post 1500. In columns 1 and 4, we control the dynamic impacts of Average Number of Mountains. In columns 2 and 5, we control the dynamic impacts of the dummy of Coastal Province. In columns 3 and 6, we use the alternative temple measure. Coefficients are reported with standard errors clustered to prefecture-level in brackets. ***, **, and * indicate significance at 1%, 5% and 10% levels.

Table A6. Effects of TDM on Long-term Human Capital Accumulation, Controlling Clan Temple and Temple in 2006

Dependent Variable:	Average Years of Schooling		Literacy Rates (%)		Culture and Education Exp. per capita	
	(1)	(2)	(3)	(4)	(5)	(6)
Average Temple	0.716	1.042	3.115	6.760	29.889	32.099
	[0.243]***	[0.242]***	[1.020]***	[2.010]***	[9.406]***	[9.449]***
Average Clan Temple	0.088		1.241		7.631	
	[0.038]**		[0.317]***		[1.477]***	
Average Temple in 2006		-0.078		-0.774		2.295
		[0.016]***		[0.130]***		[0.612]***
Population in 1820, 2000	YES	YES	YES	YES	YES	YES
Area	YES	YES	YES	YES	YES	YES
Province Dummy	YES	YES	YES	YES	YES	YES
Average *Jinshi* Number	YES	YES	YES	YES	YES	YES
Average Charity Organization	YES	YES	YES	YES	YES	YES
Importance Level	YES	YES	YES	YES	YES	YES
Treaty Port	YES	YES	YES	YES	YES	YES
Caloric Suitability Index Post 1500	YES	YES	YES	YES	YES	YES
Average Factories (1916)	YES	YES	YES	YES	YES	YES
Average Tax Burden (1850)	YES	YES	YES	YES	YES	YES
Average Vicars and Churches	YES	YES	YES	YES	YES	YES
Obs.	1,744	1,744	1,744	1,744	1,744	1,744
R-squared	0.455	0.461	0.409	0.416	0.604	0.601

Notes: This table reports estimation results of equation (4). Each observation is a county. Average Temple is defined as the number of temples per 10,000 people. The baseline controls include the Population in 1820, 2000, Area and Province Dummy. The historical controls include the Average *Jinshi* Number, Average Charity Organization, Importance Level, Treaty Port, Caloric Suitability Index post 1500, Average Factories in 1916, Average Tax Burden in 1850 and Average Vicars and Churches. In columns 1, 3 and 5, we control the Average Clan Temple. In columns 2, 4 and 6, we control the Average Temple in 2006. Coefficients are reported with standard errors in brackets. ***, **, and * indicate significance at 1%, 5% and 10% levels.

Table A7. Effects of TDM on Average PKU and THU Student

Dependent Variable:	Average PKU and THU Student in 2006-2010			
	(1)	(2)	(3)	(4)
Average Temple	0.001	-0.011	-0.010	-0.006
	[0.055]	[0.059]	[0.060]	[0.060]
Average Clan Temple			-0.001	
			[0.009]	
Average Temple in 2006				-0.002
				[0.004]
Population in 1820, 2000	YES	YES	YES	YES
Area	YES	YES	YES	YES
Province Dummy	YES	YES	YES	YES
Average *Jinshi* Number	NO	YES	YES	YES
Average Charity Organization	NO	YES	YES	YES
Importance Level	NO	YES	YES	YES
Treaty Port	NO	YES	YES	YES
Caloric Suitability Index Post 1500	NO	YES	YES	YES
Average Factories (1916)	NO	YES	YES	YES
Average Tax Burden (1850)	NO	YES	YES	YES
Average Vicars and Churches	NO	YES	YES	YES
Obs.	1,945	1,744	1,744	1,744
R-squared	0.151	0.177	0.177	0.177

Notes: This table reports estimation results of equation (4). Each observation is a county. Average PKU (Peking University) and THU (Tsinghua University) students is defined as the number of top 2 university alumni in 2006-2010 per 10,000 people. Average Temple is defined as the number of temples per 10,000 people. The baseline controls include the Population in 1820 and 2000, Area and Province Dummy. The historical controls include the Average *Jinshi* Number, Average Charity Organization, Importance Level, Treaty Port, Caloric Suitability Index post 1500, Average Factories in 1916, Average Tax Burden in 1850 and Average Vicars and Churches. In column 3, we control the Average Clan Temple. In column 4, we control the Average Temple in 2006. Coefficients are reported with standard errors in brackets. ***, **, and * indicate significance at 1%, 5% and 10% levels.

Appendix B

We use the prefecture-level map in 1820 and the county-level map in 2000 to carry out the mapping of historical information onto current administrative units. For any prefecture-level variable X_p in 1820, the county-level variable X_c in 2000 is calculated by:

$$X_c = \sum_p \frac{Area_{cp}}{Area_c} * X_p$$

where $Area_c$ is the area of County c, and $Area_{cp}$ is the overlapping area of Prefecture p and County c.

We use Figure B1 as a simplified example to illustrate our method. In Figure B1, the black line depicts the boundary of Prefectures A and B in 1820, while the gray line depicts the boundary of County 1, 2 and 3 in 2000. The Area B2 represents the overlapping area of the Prefecture B and County 2, while the Area A2 represents the overlapping area of the Prefecture A and County 2. Given X_A and X_B, we compute X_2 as

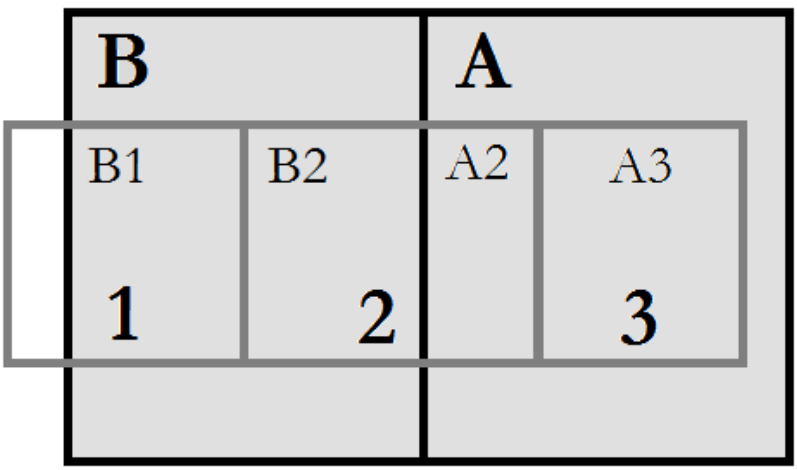
$$X_2 = \frac{Area_{A2}}{Area_2} * X_A + \frac{Area_{B2}}{Area_2} * X_B$$

Similarly, we compute X_1 and X_3 as

$$X_1 = \frac{Area_{B1}}{Area_1} * X_B$$

$$X_2 = \frac{Area_{A3}}{Area_3} * X_A$$

Figure B1. Illustrative Mapping Example



Appendix C

In this Appendix, we discuss the sources for our control variables and the construction of our key variables in greater detail.

Sources for Additional Control Variables

First, we collect prefecture-level information on the local population from the *Population History of China* by Ge et al. (2000), which uses rich historical records to recover China's population distribution from 200 BC to 1953 AD. For the Qing dynasty, the Republic of China, and the PR China, Ge et al. (2000) construct a prefecture-level population dataset for six years: 1776, 1820, 1850, 1880, 1910, and 1953. This dataset is recognized as providing reliable demographic records for historical China, and has been widely used by economic historians.[16]

Second, we calculate the administrative area for each prefecture based on the 1820 China GIS map from the CHGIS database.[17]

Third, the civil exam in the Qing dynasty (1644–1911) operated at different administrative levels, and there existed explicit quotas for each jurisdiction for each level of exam. Throughout the 268 years of the Qing dynasty, 26,849 successful candidates (*Jinshi*) passed the exam at the highest level and became government officials. From the "Official Records of *Jinshi* in the Qing Dynasty" (*Qingchao Jinshi Timing Lu*), we identify each successful candidate's prefecture of origin and aggregate to construct a prefecture-level dataset of successful candidates. We also collect the quota assigned to each prefecture for the prefecture-level exam, which was strictly regulated by the central government to control the number of candidates for the upper-level exams. We digitalize the exam quota from the "Imperially Established Institutes and Laws of the Great Qing Dynasty" (*Qinding Daqing Huidian Shili*). The number of *Jinshi* and the exam quota measure the levels of traditional elite human capital in each prefecture.

Fourth, the Database of Grain Prices in the Qing dynasty recorded prefecture-level monthly grain prices during 1736–1911, including the lowest and highest prices in each prefecture in each month for each crop (Wang, 2013). We compute the standard score (z-score) of grain prices for each prefecture and for each year between 1902 and 1911.[18]

Fifth, the GIS map constructed by Wang (2013) contains information on all the 5,412 major charity organizations in the Qing dynasty (as of 1820). We count the number of

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[16] For example, see Jia (2014).

[17] http://www.fas.harvard.edu/~chgis/.

[18] The standard score (z-score) of raw variable X is $Z = \frac{X-\mu}{\sigma}$, where μ is the mean of X and σ is the standard deviation of X.

charity organizations in each prefecture and match this information with our prefecture-level dataset.

Sixth, we construct a group of four variables to measure the administrative characteristics of every prefecture. Liu (1993) summarizes the designation of every prefecture, which indicates whether a prefecture belongs to any of the four categories: *chong* (important in transportation/communication), *fan* (important in public affairs), *pi* (difficult to gather taxes), and *nan* (high crime rate). We digitize this information and create a dummy variable for each category. In the Qing dynasty, the central government defined a prefecture's importance based on whether it belongs to none, one, two, three, or all of these four categories. In the same way, we define the variable of prefectures' importance level as equal to 0, 1, 2, 3, or 4, where a higher value represents a higher level of administrative importance.

Seventh, some regions, known as the "treaty ports," were forced by western countries to open for international trade after the first opium war (1839–1842). Since these prefectures experienced very different development paths (Jia, 2014), we digitize this information from *Selected Statistical Materials on Modern Chinese Economic History* (Yan, 1955) and construct a dummy variable for treaty ports.

Eighth, we measure the agriculture suitability by the Caloric Suitability Indices (CSI) constructed by Galor and Özak (2016). The CSI data provides indices for each cell of five longitude degrees by five latitude degrees. We use the maximum potential caloric yield attainable in the cells, given the set of crops that are suitable for cultivation in the post-1500 period. For each prefecture, we compute the average value of this index.

Variable Construction

Average Temple

Ideally, to proxy for temple assets, we would like to have detailed information on the number of temples in each prefecture along with measures for the scale and wealth of each temple. However, as discussed in Section 3.A, the Imperial Encyclopedia of the Qing Empire lists only important temples and omits the smaller ones; it also has little detailed information on the wealth level of each temple. Therefore, we proxy for the average initial stock of temple assets using the average number of important temples in 1820 in each prefecture.[19] Since 1820 is long before the start of the TDM, this proxy is pre-determined and would not have been affected by the TDM itself.

[19] The number of important temples in 1820 divided by the local population in 1820.

For this to be a good proxy, we also need to assume that the (unobservable) overall temple assets are positively correlated with the number of important temples, which seems to be reasonable. Further, since whether a temple is listed as "important" or not is a subjective judgment call made by the authors of the Imperial Encyclopedia of the Qing Empire, the standards may be inconsistent across regions and lead to measurement errors. However, as long as the measurement error is not correlated with the potential for future development in modern education, it only reduces our statistical power but does not bias our estimates. Figure 2 illustrates the geographical distribution of the initial stock of average temples, showing that the density of temple stock is fairly scattered nationally instead of being concentrated in specific clusters, reducing the concern about confounding spatial unobservable factors.

We also construct an alternative temple measure – the average number of important temples in each prefecture in 1776 – which comes from another independent historical archive. We replicate our main analysis using this alternative measure to check for robustness with respect to the temple asset proxy variable. We can also replicate all the main results using the 1776 temples as an instrumental variable for 1820 temples to deal with measurement errors. These results are available upon request.

Average Number of Schools/Students

We use the education and population data described in Section 3.A to calculate the average number of schools and students in each prefecture. For modern schools/students in 1907, 1908, 1909, and 1915, we use the population of 1910 as the denominator. For schools/students in 1930, since we only have population data for 1910 and 1953, we still use the 1910 population as the denominator because it is closer to 1930. However, to ensure this choice does not drive our results, we also use the 1953 population, as well as the average of the 1910 and 1953 populations; neither approach changes the results in any meaningful way.

Figure 3 illustrates the geographical distribution of the average number of primary schools in each prefecture in each year, which visualizes the dynamics of school construction in each region, as well as the reduction in sample size in 1930.

Average Top University Alumni

By using the alumni data from Section 3.A, combined with the population data, we calculate the average number of students enrolled in the top two universities in each period

for each prefecture. Again we use the 1910 population as the denominator. We also use the 1953 population and the simple average of the 1910 and 1953 populations, but for all three choices, the results are essentially the same.

Contemporary Human Capital

In our contemporary county-level dataset, we have information for all the Chinese counties in 2000 on average years of schooling, literacy rates, culture and education expenditure per capita, and top university alumni between 2006 and 2011.

Appendix D

In this appendix, we conduct a series of additional checks to investigate the robustness of our findings.

Alternative Measurement of Temple Assets

The key variable for our analysis is the stock of average temples, which is used to proxy for the average stock of temple assets in the local area before the TDM started. In our main analysis, we used prefecture-level data digitized from the Imperial Encyclopedia of the Qing Empire, which documents the most important temples in China. According to historical records, while China had more than 200,000 registered temples, only about the most important 1.5% were documented in this encyclopedia. For our measurement to precisely reflect the distribution of temple assets, we thus need to assume that the total stock of temple assets in a region is positively and highly correlated with its stock of large temples.

To address the potential concern that our results may be sensitive to this proxy for temple assets, we explore another source of temple data, a county-level record digitized from the Imperial Encyclopedia of Gazeteer (*Gujin Tushu Jicheng*). This source documents the relatively important temples across the country in 1776. Since no county-level population data are available, we could not conduct our main analysis at the county level. Instead, we aggregate it at the prefecture level to establish a different measure of the stock of temple assets, which covers the most important 15% of the temples in China. Figure A1 presents a scatterplot of these two measures. As expected, these two measures are highly and positively correlated with each other. Furthermore, we reproduce Figure 4 by using the new data; as shown in Figure A2, the patterns are similar to our main findings. In columns 3 and 6 in Table A5 in Appendix A, we rerun the main specifications by using the new dataset, and all the results are qualitatively the same.[20] Therefore, we conclude that our main findings are unlikely to be sensitive to the measurement of temples.

Inclusion of Primary Schools in 1820

Another concern about our results is that, when testing for the pre-trends of school construction and student enrollment before the TDM started, our three study periods (1907–1909) are adjacent to each other, which may limit our power to detect potentially

[20] Details for these additional robustness results are available upon request.

significant differential prior trends in such a short period. If that is the case, our evidence for "parallel trends" would be weakened.

We deal with this issue using 1820 data on traditional primary schools. The traditional primary schools differ in many ways from the modern primary schools; therefore, we did not match them with our main dataset between 1907 and 1930. However, the 1820 data could be helpful for testing parallel trends; the change in primary schools between 1820 and 1909 could reflect the trend of human capital investment in the long run, which could provide us with substantial power to detect any potential divergence caused by initial differences in the stock of temples.

Hence, by including 1820 data in our sample, we reproduce the figure on school construction trends. As we can see from Figure A3, prefectures with average temples above and below the median level had almost the same number of average schools in 1820 (statistically indistinguishable); moreover, there are no statistically significant differences in the trends of school construction in the subsequent 89 years. These results further suggest that temples are not correlated with initial human capital stock, nor are they correlated with prior trends of human capital formation.[21] These results further confirm the "parallel trends" and "balanced initial levels" assumptions.

Controlling for Additional Geographical Conditions

One additional concern is that, since geographic conditions might predict the location of both temples and schools, they may thereby confound the DiD results of temples on schools/students. In columns 1, 2, 4 and 5 in Table A5 in Appendix A, we control for geographical variables, including the dynamic impacts of mountains and the dummy of coastal province, finding the baseline results to be highly robust.

[21] Including 1820 data does not change the results of our main analysis. The results are available upon request.

Appendix E

Table E1. Lawsuits in The Temple Destruction Movement

Province	Prefecture Cities/ County	Description	Source
Hunan	Changsha	Religious leaders in *Gu-shan* Temple sued the local government official *Chang-zhi Li* for robbing the temple's assets. The Department of the Interior required the local government to "reexamine the case carefully."	*Government Affairs*, No. 151, September 18, 1912
Hunan	Changsha	Religious leaders in *San-guan* Temple sued on the basis that the gentry *Dao-yu Zhou* took the temple's assets with local gangsters' help. The Department of the Interior required the local government to "reexamine the case carefully."	*Government Affairs*, No. 796, July 24, 1914
Hunan	Changsha	Religious leaders in *Hong-en* Temple sued on the basis that the gentry *Peng-wan Wu* misused the confiscated temple's assets for setting up factories. The Department of the Interior required the local government to "reexamine the case carefully."	*Government Affairs*, No. 796, July 24, 1914
Hunan	Changsha	Religious leaders in *Zhun-ti* Temple sued on the basis that the gentry *Yun-sheng Chen* took and sold the temple's assets for private benefits. The Department of the Interior required the local government to "reexamine the case carefully."	*Government Affairs*, No. 796, July 24, 1914
Hunan	Hetui	Religious leaders in *Qi-shan* Temple sued on the basis that the local gentry robbed and misused the temple's assets with the help of local government officials. The Department of the Interior required the local government to "reexamine the case carefully."	*Government Affairs*, No. 1201, September 10, 1915
Hunan	Changde	Religious leaders in *Qian-ming* Temple sued on the basis that the local gentry robbed and sold the temple's assets illegally. The Department of the Interior required the local government to "reexamine the case carefully."	*Government Affairs*, No. 1290, December 10, 1915
Shanghai		Religious leaders in *De-zang* Temple sued on the basis that the local gentry illegally confiscated the temple's assets, and claimed that the temple's assets were private properties, which should not be used for public school construction. After two years of trial, the local court finally rejected the religious leaders' claim.	*Shun Pao*, December 29, 1912; February 7, 1914;
Jiangsu	Rugao	The principal of a local school *Yuan-xi Wu* took the lands and the assets of *Guang-fu* temple. Religious leaders in *Guang-fu* temple sued on the basis that the temple was a private property and should be exempted from confiscation. Under the pressure of local governments, the Department of the Interior judged that the lands and the assets of *Guang-fu* temple belonged to the local school.	*Government Affairs*, No. 1273, November 23, 1915

Sources: *Government Affairs* 政府公报; *Shun Pao* 申报