Bonds of Love:
Patriotism and the Rise of Modern Banks*

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Abstract: This study illuminates the role of patriotism in banking development within the context of state formation, exploring the hypothesis that the initial trust vested in modern banks was a synergistic extension of the public's patriotic sentiment. The cessation of Western financial support in WWI (1914) prompted China to rely on its domestic government bond market. Despite the new Republican government's unproven creditworthiness, patriotic civilians subscribed to government bonds, which nurtured the rise of nascent official banks that underwrote these bonds. This trust in official banks gradually extended to the private banks, fostering the development of the entire modern banking system. Our findings highlight that patriotism could serve as an alternative source of trust in government and financial institutions, particularly during challenging periods.

Keywords: Patriotism, social contract, trust, modern banks, government bonds, financial development.

JEL Classification: G21, N25, N45, P16

Nationals are those who regard the country as the collective property of the people. A country is formed by its people; without the people, there is no country. The people of a country manage its affairs, establish its laws, seek its welfare, and defend it from danger. The people must not be scorned, and the country must not be lost. This is what is meant by 'nationals'.

--- Liang Qichao[1] (1899)

1. Introduction

Trust in financial institutions is crucial for the sector to grow (Guiso et al., 2004, 2013; An et al., 2022). Understanding the origins of financial trust is therefore essential. While government endorsement typically functions to bolster financial trust—for instance, government backing is a common approach to mitigating financial instability such as bank runs (Diamond and Dybvig, 1983; Carlson et al., 2011)—trust in government is not inherently stable. During challenging periods such as financial crisis, wars and revolutions, both government and bank credibility deteriorate.[2] In this paper, we investigate the role of patriotism as a remedy for public trust (Depetris-Chauvin et al., 2020). Acting as a safeguard of last resort, patriotic sentiment ensures continued support from the populace for the government (Ongena et al., 2019), and the reinforcement of government integrity, in turn, solidifies financial and economic stability.

This study illuminates the role of patriotism in banking development within the context of state formation[3], exploring the hypothesis that the initial trust vested in modern banks was a synergistic extension of the public's patriotic sentiment. Rich anecdotes provide supportive evidence as in various countries, the first modern banks were established under governmental auspices, particularly during times of public finance shortfall. For example, the Bank of England was established shortly after the Glorious Revolution to manage public debt and finance war efforts (North and Weingast, 1989; Weingast, 1997). In addition, governments frequently leveraged patriotic sentiment to encourage citizens' participation in national finance

[1] Liang Qichao (1873–1929) was a leading reformist and patriot in late Qing China. Influential during the Hundred Days' Reform of 1898, he advocated for modernizing China into a constitutional monarchy. After the reform's failure, he went into exile in Japan, where he was exposed to the theory of Rousseau (1762) and became a prominent writer, influencing Chinese thought on democracy, nationalism, and modernization. Liang's ideas significantly shaped the political discourse leading up to the establishment of the Republic of China in 1912.

[2] Financial crises can lead to severe trust crisis in government and political consequences. Exploring the Great Recession, Algan et al. (2017) demonstrated that trust in governmental institutions largely diminished during financial downturns. Doerr et al. (2022) found that bank bankrupts in 1930s Germany radicalized voters, increasing support for the Nazi party. Similarly, Gyöngyösi and Verner (2022) suggested that citizens impacted by financial shocks are more likely to lose faith in incumbent governments and shift their allegiance toward populist far-right movements.

[3] Under the framework of social contract theory, patriotism is defined as the public's willingness to contribute to state formation efforts, such as engaging in community service and civic activities, volunteering for military service, and purchasing government bonds during wartime (e.g. Caprettini and Voth, 2023).

when confronting difficulties. For instance, during World War I in the United States, the government and the Federal Reserve Banks appealed directly to citizens' patriotism to purchase Liberty Bonds (Sutch, 2016). These initiatives not only helped raise funds for public finance but also contributed to legitimizing the modern banks which acted as public financial agent. We will elaborate on additional examples in details in Section 7.

In this paper, we explore the unique history of early 20th century China (approximately 1902−1926, spanning from the late Qing to the early Republican era) to gauge the role of patriotism in early banking development. This period offers distinctive advantages for testing the hypothesis. First, the transition from the Qing dynasty to the Republican era in 1912 presented significant challenges in public finance and in public trust due to the new government's unproven credibility, compelling it to cooperate with banks to raise funds. Second, modern banks only emerged in China in late 19th century, providing a fresh slate to investigate how trust was formed in these institutions in their nascent stage. Most importantly, the outbreak of World War I (1914) as an exogenous fiscal shock, combined with the large regional variation in patriotism within China, enables us to establish a Difference-in-Difference identification strategy.

To motivate the empirical strategy, we briefly describe the historical background. Following its defeat in the Opium War in the 1840s, China underwent a forced opening to foreign powers, which introduced political instability. The Qing dynasty fell in 1911, leading to the transition into the Republican era (1912−1949). Both Qing and early Republican administrations faced significant capital shortages. Until the mid-1910s, Western nations and foreign banks had been the primary financiers of the Chinese government (Xu, 1962). However, with the outbreak of World War I (WWI) in 1914, Western countries, particularly European nations, withdrew a significant portion of their financial support. This external shift compelled the Republican government to seek capital from the domestic market by issuing government bonds. As depicted in Figure 1, foreign debts have abruptly decreased in 1914, while domestic government debts have significantly increased in both value and proportion thereafter.

Rich historical anecdotes support the view that the rise of the domestic government bond market largely fueled the early growth of the Chinese modern banking system (Wu, 1935; Young, 1971; Cheng, 2003). Modern banks, particularly official banks, significantly profited from underwriting and trading government bonds (Ho and Li, 2014). They were also allowed to issue banknotes by using government bonds as collateral (Braggion et al., 2020). As a result, it was natural for modern banks to establish or expand branches in areas where the public was

more willing to subscribe to government bonds and circulate government bonds-backed banknotes.

Amidst the uncertainties of the time, what motivated Chinese populace to subscribe to government bonds or to trust in government bonds-backed banknotes? People's patriotic sentiment was crucial. Such sentiment implies a tacit agreement - a social contract - with the state, [4] reflecting civilians' willingness to support the government. We hypothesize that regions with higher levels of patriotism towards the Republic regime would experience a more significant increase in government bonds subscriptions and consequently in the growth of modern banks following the outbreak of WWI in 1914.

The central challenge is how to capture the *ex-ante* cross-sectional variations in the strength of patriotic sentiment. To address this, we resort to the measures of people's efforts in overthrowing the old, corrupt regime and building a new state. In particular, we utilize historical records of civilian unrest in the decade preceding the collapse of the Qing government (1902–1911)[5]. We particularly focus on the unrests involving resistance to late-Qing tax policies, which constituted approximately 22.9% of the total unrests during this period.[6] This is enlighted by the social contract theory which asserts that a state's legitimacy arises from its civilians' consent and collective will, and that tax compliance represents an essential form of collective loyalty (Locke, 1689; Rousseau, 1762). The anti-tax unrest indicates a profound awareness of the contractual relationship between Chinese civilians and the Qing court, demonstrating a deep-seated belief in the rights of civilians to hold their government accountable (Fairbank, 1983)[7].

Seemingly counter-intuitive, sophisticated unrest can be interpreted as an expression of patriotism and efforts in state-building. Such acts of resistance are costly. Only when individuals possess a profound sense of faith and love for their nation, they may be compelled to challenge a government they perceive as inadequate or corrupt. It is unlikely for people to engage in protests for a government they do not care about. These protesters, during periods

[4] The social contract theory envisages the modern state as a mutual agreement between the civilians and the government, where the state provides protection and rights in exchange for civilians' patriotic loyalty in the forms of financial contribution, such as tax compliance and government bonds subscription, and voluntary commitments, such as military service (Locke, 1689; Rousseau, 1762; Besley, 2020; Caprettini and Voth, 2023).

[5] According to the records of Zhang and Ding (1982), there were more than 1,200 unrests took place in all 18 provinces of China Proper - an average of one protest every three days - from 1902 to 1911.

[6] Other types of unrests included anti-foreigner or anti-gentry class unrests, as well as turmoil related to peasant movements and banditry.

[7] Several significant revolutions were initiated in response to tax resistance, including the Glorious Revolution in England (Hoffman and Norberg, 2002), the Boston Tea Party in America (Smith, 2013), and the French Revolution in France (Lefebvre et al., 1947).

of peace or state formation, are often among the most significant contributors to the nation's development.

In the language of social contract within our empirical setting, regions showing stronger resistance to the Qing regime is indicative of a stronger desire to “tear up” the old “contract”. This shift also signifies a readiness to engage in a new social contract, embracing the promise of patriotic participation in the state-building during Republican era. Further anecdotal evidence supporting this interpretation will be provided in the historical background section 2.4.

In section 4, we conduct several empirical tests to assess the reliability of anti-tax unrests as a measure that captures patriotic state-building efforts. Our findings indicate that regions with a higher incidence of anti-tax unrests during the late Qing exhibited increased civic engagement in the Republican era. The state-building efforts manifested in various forms, including 1) military participation, as measured by the number of cadets at Baoding Military Academy, 2) establishment of associations promoting political ideologies, and 3) establishment of associations aimed at social welfare, such as charities and support groups for vulnerable demographics like women and youth.

Based on the DiD strategy, we find that provinces with more frequent anti-tax unrests prior to 1912 were able to collect significantly more money through issuing government bonds after the outbreak of WWI in 1914. The magnitude of alternative investment opportunities, indicated by local loan rates, did not alter the impact of patriotic sentiment on government bond subscriptions.

These findings support that the anti-tax unrests during the late Qing effectively captured the awareness of the social contract, which was associated with more patriotic state-building efforts in terms of both life and monetary contributions. Furthermore, to address the possibility that these unrests represented political opportunism rather than patriotism, we formally discuss this alternative explanation and provide empirical tests using alignment with the Xinhai Revolution as a proxy for political opportunism. The results support the interpretation of patriotism over political opportunism.

In section 5, we formally investigate to what extent the growth of modern banks was cultivated by patriotic sentiment. The dependent variable, the banking development, is proxied by the number of modern Chinese banks in each prefecture in each year. This dataset was manually collected from more than 2,000 local gazetteers. The main independent variable

follows a treat × post structure, where the treat variable is the total number of anti-tax unrests between 1902 and 1911 in each prefecture, and the post variable is a dummy that equals to one for years after 1914. The sample encompasses 286 prefectures from 18 provinces in China proper. It ranges from 1912, the beginning of the Republican Era, to 1926, before the onset of the Northern Expedition, which signified another significant shift in the Chinese political landscape.

Consistent with our hypothesis, we find that the number of modern banks increased significantly more after 1914 in prefectures that experienced more anti-tax unrests between 1902 and 1911. After controlling a wide range of population and geographic controls, as well as prefecture and year fixed effects, an increase of just one anti-tax unrest is associated with a 0.48 increase in the number of banks after 1914, corresponding to a 25% increase when evaluated at the mean (1.92 banks). The parallel trend test (Figure 3) indicates no evidence of divergence in banking development before 1914 between regions with higher and lower number of unrests. However, there was a notable and statistically significant break in the evolution of banking development following the onset of WWI which resulted in urgent demand for patriotic support from the populace. Our findings underscore the positive effects of patriotism in banking development.

Despite the DiD identification strategy, one might argue that the endogeneity concerns still exist because the omitted variables are hard, if not impossible, to be fully measured and controlled for. It might be the case that regions with better economic foundation might expose their populations more to modern ideologies, leading to an increased awareness of civic rights and the subsequent flourishing of modern banks after the 1914 financial demand shock. To address this concern, we employ an instrumental variable (IV) approach using the occurrence of massacres during the founding period of the Qing Dynasty (1644−1661) as an instrument for anti-tax unrests in the late Qing (1902−1911). The brutal massacres were initiated by the Qing army to conquer China inland, significantly reducing the population from its peak during the Ming Dynasty (1368−1644). These historical events deeply impacted the collective memory, likely fostering longstanding dissatisfaction and mistrust toward the government. We posit that regions which had experienced these massacres should show a higher propensity for anti-tax unrest, particularly when the central government's control weakened. Crucially, the exclusive condition is arguably satisfied because the early Qing massacres were exogenously determined by the marching routes of the Qing Army's entry into inland China. Furthermore, these brutal events naturally led to the destruction of local economic conditions, which would

not have been favorable to the development of banking. The results of the Two-Stage Least Squares (2SLS) analyses support our hypothesis, demonstrating a robust relationship between anti-tax unrests and banking development. Notably, when comparing the instrumented coefficient (1.18) from the 2SLS estimation with the OLS estimate (0.479), the impact of anti-tax unrests in the IV estimation is approximately 2.46 times greater than in the OLS estimation, which does not indicate a high coefficient inflation issue (Jiang, 2017).

Next, we include additional controls to alleviate confounding effects from other economic and modernization factors that might induce a break in banking development around the time of the outbreak of WWI in 1914. We consider: 1) the number of industrial firms, reasoning that industrialization was the main engine of financial needs in early 20th-century China; 2) the amount of import and export duties, reasoning that WWI might influence Chinese banking development through trade shocks rather than fiscal shocks; 3) the number of treaty ports opened to foreigners to reside and trade, which were the fountainheads of economic modernization in China; 4) the civil examination quotas interacted with post-1914 dummy, which serve as a proxy for the supply of human capital; 5) the number of telegraph stations and railway stations, which capture the role of modern communication infrastructure; 6) the occurrence of local civil wars and the occurrence of natural disasters (flood and drought), which might affected modern banking development by causing regional instability. After integrating all these additional variables into the regression, the coefficient of the patriotism's impact on banks remains robust, with the magnitude of coefficient changes little. In addition, the analyses using IV approach and at the county level yield robust results.

We conduct a set of falsification tests to rule out alternative explanations. First, it is possible that anti-tax unrest merely reflects higher tax burdens, which might be correlated with higher tax level and better economic foundation. To tackle this possibility, we compile data on the 1) per capita land tax in each prefecture for the year 1820 (log) and 2) the number of commercial tax bureau in each prefecture, using them as alternative treat variable in our DiD regression. It is found that the interaction of tax burden measures with the post-1914 dummy shows little significant impact on the banking development.

Second, we make a distinction between anti-tax unrests and radicalized forms of nationalism or xenophobia (Orwell, 2018).[8] Unlike anti-tax unrest, which stems from a desire

[8] George Orwell (2018) defined 'patriotism' as the devotion to a specific place and way of life, without any intention of imposing it on others. He specifically highlighted the defensive nature of patriotism, both in terms of military and cultural aspects. In contrast, Orwell associated nationalism with the desire for power, asserting that nationalists are primarily driven by the pursuit of increasing power and prestige for their chosen nation or group, often at the expense of their individuality.

to uphold the principles of the social contract, xenophobia is not grounded in a rational understanding of civic duties and rights. We construct two proxies for radicalized xenophobia: a dummy variable indicating the occurrence of the Boxer Movement between 1899 and 1901[9], and the number of anti-foreigner unrests involving "attacking foreigners", "attacking missionaries", or "destroying churches" between 1902 and 1911. While we find positive correlation between anti-foreigner unrests and anti-tax unrests, the results using the anti-foreigner measures in DiD regression reveal no significant impact of xenophobia on banking development following the outbreak of WWI.

Finally, to ensure that our patriotism proxy does not merely reflect the general level of discontent and turmoil, we employ three proxies for unrests that did not specifically target the Qing government: the number of 1) anti-gentry class unrests, 2) banditry activities, and 3) peasant riots. We do not find any of these placebos yield significant influence on banking development. Overall, the above falsification tests offer robust justification for using anti-tax unrests as a plausible measure to capture a distinct aspect of the social dynamic between people and the state. The results strengthen the argument that anti-tax unrest is not merely general dissatisfaction or specific forms of unrest, but specifically the awareness of a social contract with the government, which has a discernible influence on the development of modern banks.

We also perform analyses at the bank level. Based on the manually collected data on the annual balance sheets of 19 major banks between 1922 and 1926, we find that banks who increased their exposure to patriotic sentiment held significantly more government bonds in their assets and had better profitability.

In Section 6, we shed light on the dissemination of trust from the government to banks by examining the distinct dynamics in the development of official and private banks. Historical records suggest government bonds were mainly underwritten by official banks initially. During the early stage, the rise of official banks was a by-product of publics' state building effort. As time passed, these official banks matured, proving their reliability and effectiveness, which in turn fostered public trust in similar institutions established by the private sector. Our dynamic DiD analyses show that while the influence of anti-tax unrests on official banks was pronounced immediately after 1914, its impact on private banks became salient only after 1920. This implies a time-lagged spillover effect from official to private banks. Furthermore, we find

[9] The Boxer Movement was an anti-imperialist, anti-foreign, and anti-Christian uprising between 1899 and 1901. The Boxers were particularly hostile towards Christian missionaries and Chinese converts to Christianity, whom they blamed for the nation's problems (Esherick, 1987).

that the impact of patriotism on the growth of private banks is mediated through the development of official banks: the significant predictive power of patriotism on private banking growth turns insignificant when the presence of official banks is accounted for, indicating a mediation effect.

In Section 7, we present various anecdotes that support the broader applicability of our findings, suggesting that our main conclusion can be generalized to other countries. In nations such as Great Britain, the United States, and Japan, the establishment of the first modern banks was initiated by the governments to address public finance shortage following revolutions and wars. In addition, it was pervasive for the governments and banks to appealed to patriotism while raising money from the populace. By investing in government bonds, patriots not only supported their nation but also contributed to the growth and legitimacy of the nascent modern banks.

Our study contributes to three strands of literature. First, it complements the literature on the state-building effects of patriotism within the framework of the social contract theory (Besley, 2020; Weigel, 2020; Caprettini and Voth, 2023; Besley and Dray, 2024; Bisin and Verdier, 2024). We expand these discussions by demonstrating how social contract dynamics lead to a synergistic outcome in terms of financial development. In particular, patriotic sentiment enhances trust (Gangl et al., 2016; Depetris-Chauvin et al., 2020), and trust fosters banking development.

Second, this paper contributes to the literature on the determinants of modern banking development in the long run. Previous studies have emphasized the role of laws and institutions (La Porta et al., 1997, 1998; Claessens and Laeven, 2003; Acemoglu and Robinson, 2012; Levine et al., 2023), technological advancements (Atack et al., 2014; Lin et al., 2021), human capital (Lin et al., 2024), culture and civic capital (Guiso et al., 2011), and historical endowments (Pascali, 2016; D'Acunto et al., 2019). While the importance of financial trust has been acknowledged (Guiso et al., 2004, 2013; An et al., 2022), our study investigates an alternative source of trust: patriotism. This perspective offers a novel understanding of how sociopolitical factors can intersect with the evolution of the financial sector.

Third, our study builds upon literature on the influence of government bonds on banking development (North and Weingast, 1989; Hauner, 2009; Hilt et al., 2022; Tang and Basco, 2023), with a specific focus on the historical context of China (Du, 2012; He, 2013; Ho and Li, 2014; Yan, 2015; Braggion et al., 2020). We contribute to this stream of studies by proposing

that patriotic sentiment is instrumental to the relationship between government bonds and banks, in particular during challenging periods when the government's creditworthiness is questioned. Our analysis reveals that patriotism operates as a buffer against the "credible commitment problem" (North and Weingast, 1989; Ma, 2019).

The paper is structured as follows: Section 2 overviews the historical background. Section 3 elaborates on the data employed. Section 4 presents empirical evidence to affirm that the incidence of anti-tax unrests is a reliable measure of patriotism. Section 5 presents the main findings on the effects of patriotism on modern banking development. In Section 6, we delve deeper into the mechanisms, examining whether there was a dissemination of trust from official banks to private banks. Section 7 expands the geographic and time scope of our research, discussing the broader applicability of our findings. Section 8 concludes.

2. Historical background

2.1. Development of modern banks in China

China saw the genesis of the modern banking sector after its opening in 1840s. A few foreign banks, such as HSBC, had been established in China since 1845 and became the role model for Chinese modern banks (Cheng, 2003). In 1897, China's first local modern bank, the Imperial Bank of China (IBC), was established. While the number of foreign banks remained trivial throughout the 20th century, the Chinese modern banks began to soar in the 1910s. By 1926, 796 Chinese banks (219 headquarters and 577 branches) were operated in 164 (or 57%) of Chinese prefectures.

Before the emergence of modern banks, China's financial system was dominated by two types of traditional banks. *Qianzhuang*, also known as money houses, essentially dealt with money exchange services, and provided small loans to local business entities. Their operations were heavily reliant on informal "soft" information and the standing reputation of individuals within the local community (Huang, 2005). Another type of traditional bank, *piaohao*, also known as draft banks, specialized in facilitating money remittances across different regions. They were instrumental to merchants engaged in long-haul commerce and were also utilized by the state for transferring funds over long distances (Zhang, 1957; Huang, 1990). Modern banks are different from traditional banks in several dimensions. First, modern banks had limited liability, allowing them to attract more shareholders and capital. Additionally, they adopted professional practices and institutional structures, such as holding regular shareholder meetings, establishing independent boards of directors, and implementing international

accounting standards (Sheehan, 2003). As a result, modern banks experienced rapid growth once they gained momentum, swiftly surpassing traditional institutions in both scale and geographical reach.

The early stage of Chinese modern banking development (approximately 1900−10s) was tightly linked to the central government. While proposing the establishment of the first Chinese modern bank to the Qing Court, Sheng Xuanhuai[10] advocated in his memorandum (1896): "*China should emulate Western countries by consolidating financial resources in modern banks, which are crucial for commercial and industrial development…The establishment of Chinese banks would contribute to building trust within domestic businessmen and commoners, facilitating government bond issuance. The objective is to shift from relying on foreign debt, alleviating the burden of substantial interest rates and exchange rate losses.*" (Sheng, 1974)

Following the establishment of the IBC, other official banks, including the Bank of China and Bank of Communication, were initiated by the government to ease its financial needs. These banks, characterized by their *de facto* national banking nature, had charters explicitly stipulating their roles in underwriting, collecting, and repaying government bonds (Bank of China, and Chinese Second Historical Archive, 1991; Bank of Communication, 1995). The government had the option to use public debt securities as collateral for direct borrowing from these banks and authorized them to issue banknotes backed by the public debt (Cheng, 2003; Yan, 2015). We will elaborate more details in the next section that the early development of official banks was tightly interconnected with the government's fiscal needs.

Along with the development of the official banks, people gradually gained awareness of the functions and advantages of modern banks, leading them to establish private banks as well. These private financial institutions also actively engage in bond trading, while focusing on the secondary bond markets. In 1912, within the 199 banks (headquarters and branches) in China, only 44 (22%) were private banks. By 1926, 373 out of the 796 (47%) banks were privately owned (Lin et al., 2021).

Considering the significant changes in the Chinese political landscape brought about by the Northern Expedition, our study's sample period is confined to the end of 1926.

[10] Sheng Xuanhuai (1844–1916) was a prominent Chinese businessman and politician during the late Qing Dynasty and early Republican era. He is best known for his role in the modernization of China's industries and transportation systems. Sheng was a key figure in the development of China's banking system, railway network, mining industry, and modern education system.

2.2. Government bonds in 20th century China and the outbreak of WWI

Since 1850s, the Qing government relied heavily on foreign borrowings to finance military expenditures and war indemnities after being defeated by foreign powers. These debts were generally underwritten by foreign banks, endorsed by customs revenues and offered high interest rates.

On the contrary, the domestic government bond market did not develop until the 1910s. The first domestic national debt, *Xijie Shangkuan* ("commercial interest-bearing loans") was issued in 1894. However, due to rampant corruption, it devolved into a *de facto* form of forced taxation and ceased in 1895. Until the fall of the Qing Court in 1911, only two other bond issues were undertaken: the *Zhaoxin Gupiao* ("government-issued trust stocks") in 1898 and the *Aiguo Gongzhai* ("patriotic bond") in 1911 (Qian, 1984). Both significantly underperformed against their issuance targets[11] and were more akin to compulsory levies than market-driven bond sales. Provincial governments also sought to issue their local government bonds, mirroring the central government's efforts. Nonetheless, almost all of the provincial initiatives failed to materialize.[12] Consequently, the late Qing era's domestic government bond issues did not effectively penetrate the market.

After entering the era of the Republic of China in 1912, the new government inherited the dire fiscal situation from the Qing government: Tax revenues were nearly depleted, and the Republican government had to continue relying on borrowing foreign debt to repay indemnities and cover escalating military expenditures, such as the "Reorganization Loans" in 1913. A turning point occurred in 1914 when WWI broke out, dealing a severe blow to China's foreign debt income. Western countries, especially the UK and France, were embroiled in the war and unable to support the Chinese government financially. As shown in Figure 1, this exogenous fiscal shock prompted the Chinese government to shift its financing focus to the domestic market and begin issuing government bonds domestically. Between 1914 and 1926, the total targeted (face) amount of government bonds, denoted *Gongzhai Piao* ("public debt tickets"), reached 756 million yuan (Ling, 1928; Qian, 1984; Yang, 1985). The actual amount raised exceeded 613 million yuan. In the following section, we will delve deeper into the role

[11] For example, the "*Zhao*xin *Gupiao*" were intended to raise 100 million taels, but the actual amount collected was estimated to be less than 1/5 (Qian, 1984).

[12] A relatively "successful" case was the attempt by Zhili province (the province hosting the central government) to issue a provincial bond in 1905. Initially, this bond issuance adopted a mandatory apportionment approach, which met with public resistance. Eventually, only a tiny portion of the bonds were subscribed, and the main subscribers were Japanese banks, turning these domestic bonds into *de facto* foreign debt (Liang, 1989).

of patriotism in contributing to these bond issuances' success.

In terms of bond purpose, approximately 52% was for military and administrative expenses, 44% for economic and financial development, and the remaining 4% for disaster relief and other purposes. In practice, government bonds issued for military and administrative expenses often had a sense of urgency in their fundraising and were typically collected through administrative apportionment without reliable collateral. Conversely, bonds issued for development tended to rely more on voluntary subscriptions.

Government bonds during the Republican era were issued either by direct public offerings or by indirect bank-led sales. The latter method, where a bank or a consortium of banks underwrote the entire bond issuance and subsequently resold them to the public, dominated. To incentivize underwriting and investment, underwriter banks were offered deep discounts.[13] The banks capitalized on this opportunity by later reselling the bonds at higher market prices, thereby generating significant profits. Additionally, banks were permitted to use these government debts as reserves,[14] backing their issuance of banknotes which effectively enhanced the banks' ability to extend credit to the general business sector.[15] Furthermore, banks benefited from participating in the secondary bond market, where they could trade these government securities, leveraging fluctuations in bond prices to generate profits (Young, 1971). Numerous anecdotal accounts indicate that banks in the early 20th century reaped significant profits from their involvement in underwriting and trading government bonds.[16] During this period, the capital markets in China were relatively underdeveloped and primitive, making government bonds one of the few viable financial instruments available. Consequently, these bonds emerged as a major source of revenue for banks.

2.3. The role of patriotism in government bond issuance and banking development

The first Chinese government bond that achieved significant success was the 1914 national bond. Initially targeted at 16 million yuan with an annual interest rate of 7.25%, the

[13] In practice, the Chinese government typically used newly issued government bonds as collateral to obtain loans from banks. After these bonds were listed on the stock exchange, their settlement occurred at market prices, typically discounted between 50-60% or 60-70% of their nominal value (Qian, 1984; Yang, 1985).

[14] By 1928, banks were officially required to hold 100% reserves for issuing banknotes, of which 40% were government bonds and 60% were silver (Braggion et al., 2020).

[15] For provincial banks, the government bonds were recorded as a component of the paid-up capital (Jiang, 1991).

[16] It is estimated that, before 1930s, trading government bonds in the secondary market often yielded annual returns exceeding 20%, sometimes even reaching 30%-40%. This high yield was attributed to the credit risks associated with the new government and prevailing social instability. The government made a concerted effort to enhance its creditworthiness. By securing the bonds with customs revenues and salt taxes and by establishing Chief Superintendent of Customs to supervising the public debt funds, the debt costs reduced over time. Between 1928-1931, the yields stabilized to 14.8%-19.3%, but rose to 24.4% in 1932 due to increased repayment pressures. Following debt restructurings in 1932 and 1936, the yield subsequently decreased to 11.6% by 1936 (Young, 1971; Qian, 1984)

collected amount quickly surpassed this goal within just two months. Soon, the target was raised to 24 million yuan, and the actual amount raised eventually reached 24.92 million yuan.[17] While the successful issuance can be attributed to multiple factors, for example, the government's initiatives to establish creditability,[18] the patriotic sentiment played a crucial role (Zhu, 1993; Liu, 2008).

Zhu (1993) provided anecdotes detailing the circumstances surrounding the issuance of bonds in 1914:

...All sectors of society are in desperate need of social stability. Consequently, they politically support the government's efforts to "maintain law and order and consolidate the foundations of the state," leading them to actively favor the issuance of public debt…

...Zhou Jinzhen, the president of the Shanghai Chamber of Commerce, expressed during a gathering in Shanghai: 'As businessmen with a patriotic fervor, and being part of the financial industry, I urge you to lead the way by subscribing to this debt above all other industries." The businessmen present at the event enthusiastically pledged subscriptions amounting to over 100,000 yuan…

... At the debt mobilization meeting held by the Hankow Chamber of Commerce, Wang Qinfu remarked, "Since the devastating fire in Hankow, we have yet to settle our existing debts. Acknowledging new public debts is certainly challenging. However, your willingness to contribute today is a testament to your patriotic spirit."

After 1914, local authorities, including provinces, prefectures, and counties, emulated the successful experience and actively issued government bonds. Between 1914 and 1926, the overall success rate of government bond issuance reached over 80% (613 million yuan raised over 756 million yuan targeted) (Qian, 1984; Yang, 1985). This success rate was significantly higher than the previous level of less than 10% before 1914 and significantly varied across different regions.[19]

[17] The 1914 bonds were collected through three main channels: direct subscriptions by provincial governments, purchases by special government agencies, and underwriting by banks, mainly the Bank of China and the Bank of Communication. Half of the funding came from government subscriptions, and the other half from banks.

[18] To ensure the creditworthiness of the bonds, the government implemented institutional innovations, including establishing specialized agencies like the National Loan Bureau ("NLB") in Beijing, the national capital, as well as the Domestic Bonds Promotion Association in various provinces (Shenpao, 1914) to oversee the bond issuance process (Okamoto, 1999). The NLB, with representatives from the Bank of China, Bank of Communication, and officials from the Maritime Customs on its board, played a crucial role in independently promoting and repaying the government bonds, which were securitized by the revenue from Maritime Customs (Liu, 2008).

[19] Note that in the context of the Republican era before 1927, the political landscape was fragmented with regional warlords dominating local governance. Consequently, these local governments didn't always align with the central government, and they might issue local debts to finance their own military operations and development projects. Despite this complexity, it

As discussed in the previous section, government bonds constitute primary revenue resources for modern banks. The strategic decisions of banks to establish or expand branches in certain areas were influenced by the potential for finding subscribers to government bonds. While the underlying economic conditions of a region were undoubtedly important, public attitudes towards the government were also consequential. It is natural to imagine that banks found greater success in regions where the civilian population exhibited stronger patriotic sentiment and were thus more inclined to subscribe to government bonds.

2.4. Anti-tax unrest, social contract, and patriotism

In this section, we explore the historical context of patriotism in China. In the late 19th century, China faced multiple defeats against Western powers, leading to heavy military indemnities and a loss of economic sovereignty. The Qing dynasty's failure to respond to calls for institutional reform by the populace eroded its legitimacy. This sentiment of discontent and the desire for a new government was pervasive. C.E.S Wakefield, an official at the Changsha Customs, noted on the eve of the Xinhai Revolution[20]: "*Undoubtedly, most Chinese civilians are calling for a regime change. They are not necessarily all revolutionaries, but they sincerely support overthrowing the Qing government.*"

Wakefield's observation stemmed from the unprecedentedly high frequency of civilian unrests ("*minbian*") during the last decade of Qing dynasty (Wright, 1968). Ding and Zhang (1982) meticulously surveyed the civilian unrests between 1902 and 1911. According to their records, a total of 1,269 unrests took place across the 18 provinces of China Proper, averaging one unrest every three days. The unrests targeted a wide range of issues, such as resistance to taxation, to foreigners, and the gentry class.[21] They took various forms, including peaceful protests, strikes, and violent activities. They involved participants from various social classes, including commoners (peasants and citizens), elites (scholars and wealthy individuals), and even local officials. These collective actions are widely believed to have undermined the ruling foundation of the Qing government, thus providing popular support for the outbreak of the

doesn't detract from our main narrative: civilians may form a social contract with local governments as well. The concept of patriotic sentiment extends beyond the central government, encompassing a broader allegiance to local authorities and regional identities.

[20] Occurred in October 1911, Xinhai Revolution was a pivotal uprising that overthrew the Qing Court, leading to the establishment of the Republic of China.

[21] 291 (22.9%) cases were explicitly directed against the government's collection of taxes, mainly including agricultural and commercial surtaxes. The xenophobia inflamed by the "Boxer Rebellion" (1899−1901) led to 101 attacks on missionaries and foreigners. Furthermore, in 134 cases, commoners vented their frustrations by attacking the gentry or local elites, reflecting class tensions and resentment towards the societal hierarchy. Other notable incidents include 64 organized banditry activities and 239 peasant riots where starving populations resorted to robbing rice. The remaining cases involved protests where people expressed their grievances by destroying public infrastructure such as schools and railways, leaving specific reasons behind these actions not always clearly specified.

Xinhai Revolution in October 1911, which directly led to the establishment of the Republic of China government in 1912 (Fairbank, 1983; Chen, 1992; Wu, 2011).

We argue that unrests involving tax resistance mostly reflect social contract awareness among civilians. According to the social contract theory, the state provides protection and rights in exchange for civilians' patriotic loyalty in forms of tax compliance and voluntary commitments such as military service (Locke, 1689; Rousseau, 1762; Besley, 2020; Caprettini and Voth, 2023; Besley and Dray, 2024). In the late Qing, tax revenues were used to repay indemnities and wasted because of severe corruption, leading some sophisticated Chinese civilians to resist tax payments. These anti-tax unrests reflected a societal consciousness that demanded the government to uphold civilians' property rights and welfare (Chen, 1992). [22] In other words, collective tax resistance demonstrated the civilians' determination to terminate the contract with the Qing government and their willingness to enter a new contract with a government that represented their interests (Zarrow, 2006).[23]

Historic anecdotes suggest that the discontent against the Qing court, as measured by anti-tax unrest, a seemingly "destructive" behavior, was transformed into patriotic sentiment in constructing the subsequent Republican regime. To illustrate, we use the example of Chang Chien (1853−1926), a prominent gentry in the late Qing. Since the mid-1890s, Chang Chien engaged in multiple yet unsuccessful negotiations with the Qing court, advocating for the abolition of commercial taxes to foster industrial development in his hometown, Nantong in Jiangsu province. He also played a pivotal role in supporting Yang Meiting, a fellow leader in the anti-tax movements, for a governmental position. After participating in the Xinhai Revolution, Chang Chien held a significant position in the Republican government and became the general manager of the Bank of Communications, a major official bank, in 1922. In this role, Chang Chien gained a reputation for actively promoting and consolidating bonds issued by the central and local governments. These bonds were primarily used to foster economic development in Nantong (Li and You, 2012). In the following section 4, we will further provide

[22] Tax resistance also showcased Chinese civilians defending personal and even national economic sovereignty. One example is the Railway Protection Movement in Sichuan Province from June to December 1911, triggered by the Qing government's attempt to nationalize a railway that was privately crowdfunded by the Sichuan populace. When the government announced transferring the control of this railway to foreign banks to back for foreign loans, a lot of people in Sichuan launched several protest activities that lasted six months. A prominent form of protest was to resist tax payments. The peaceful protest finally turned violent, becoming the spark that eventually overthrew the Qing government in the Xinhai Revolution (Kaske, 2019).

[23] China is not the only country that experienced revolutions that started with tax resistance and finally led to modern nation-states. Other examples include the Glorious Revolution in England, the Boston Tea Party in America which directly precipitated the outbreak of the Revolutionary War, and the French Revolution in France. They all embodied the spirit of "No taxation without representation" (Lefebvre et al., 1947; Hoffman and Norberg, 2002; Smith, 2013).

empirical evidence demonstrating that anti-tax unrests were associated with a wide range of patriotic civic engagement activities.

One might be concerned that participants in these anti-tax unrests were acting out of political opportunism, aiming to signal loyalty to a potential new government in hopes of securing greater political resources in the future. Disentangling genuine patriotism from opportunistic motivations is challenging, and it is likely that both coexisted as the dynasty neared its end. However, we argue that the anti-tax unrests we examine are deeply embedded with genuine patriotic sentiment. Firstly, a significant proportion of these anti-tax unrests were grassroots initiatives driven by collective actions among ordinary citizens, often without a clearly stated political slogan or objective. Secondly, our sample of unrests is from up to 10 years prior to the Qing collapse. During the early part of this period, no strong, viable candidate for a new government had emerged. As Cameron (1931) noted, civil society capacity in late Qing China was limited. Numerous revolutionary movements had failed, and no unified alternative to the Qing court existed. Given the low likelihood of success and the absence of a new authority to which loyalty could be pledged, it is difficult to assert that the early anti-tax unrests were primarily driven by political opportunism. A more detailed discussion of these historical facts and regression analysis is provided in section 4.3.

In sum, we posit that the anti-tax unrests in late Qing China represented a collective response to perceived unjust policies, highlighting a breakdown in the social contract between the state and its civilians. This sense of betrayal, which turned into a new contract and patriotic sentiment towards the new Republican government, was instrumental in promoting government debt markets, thereby playing a crucial role in the early-stage development of the banking sector.

3. Data

Our sample compresses 286 prefectures from 18 provinces in China Proper.[24] In particular, *Shuntian*, the prefecture encompassing Beijing, is excluded from the sample because of its role as the national capital, leading to distinctively different incentives for both civil unrests and the establishment of banks compared to other regions. The sample period begins in 1912, when the Qing court collapsed and China entered the Republic government era, and ends in 1926, on the eve of the Northern Expedition. We obtain the records of the

[24] China proper encompasses the core 18 provinces of the Qing dynasty, excluding the frontier territories where non-Han Chinese populations resided, and which were governed through alternative administrative mechanisms.

prefectural-level administrative divisions in 1911 from the Harvard China Historical Geographic Information System (CHGIS, version 6).

3.1. Ex-ante measure of patriotism: anti-tax unrest

We propose using the total number of anti-tax unrests taking place in each prefecture between 1902 and 1911 to gauge the strength of social contract awareness cross prefectures.[25] This civilians' awareness would transform into patriotic sentiment towards the new republic regime, as the new regime was arguably partially formed due to their efforts in "tear up" contract with the old Qing court. The anti-tax unrests data is sourced from "The Chronology of Civil Unrests in the Late Qing Dynasty" compiled by Ding and Zhang (1982). This chronology recorded various types of civilian unrest, with detailed information about the why, when, and where the unrests occurred. Among the total of 1,269 recorded unrest, we identified 291 unrests of anti-tax nature, containing the keywords such as *Kangjuan* or *Kangshui* (tax resistance). As reported in Table 1, on average, 1.06 anti-tax unrests occurred in each prefecture during the decades before the Qing collapsed. 167 (58.4%) of prefectures did not experience any anti-tax unrest, and 260 (90.9%) prefectures had less than four unrest.

3.2. Ex-post measures of patriotism: (non-monetary) civic engagement

We measure non-monetary civic engagement between 1912 and 1926 using three distinct variables, each reflecting a different aspect of how civilians contribute to the state. All measures are constructed at the prefectural level.

First, we consider military participation, guided by social contract theory, which emphasizes the importance of military service as a crucial dimension of civic duty and state support (Rousseau, 1762; Polanyi, 1944; Caprettini and Voth, 2023). Sourcing from Chen (2006), we digitalized the enrollment records of the Baoding Military Academy (1902–1923). Established in 1902 in Baoding, Hebei Province, the academy was China's premier military institution during the transition from the Qing dynasty to the early Republic.[26] With the records of each student's birthplace and the year of enrollment, we construct the cross-

[25] In social contract theory, tax compliance and military participation are major forms through which civilians engage in a "contract" with the state. In our context, anti-tax unrest can be viewed as direct, although sometimes unconscious, manifestations of civilians challenging or renegotiating the terms of this social contract. When civilians resist tax policies, it often signifies more than just economic grievances; it reflects a deeper sense of disconnection or dissatisfaction with how the state is fulfilling its part of the social contract. More discussions were provided in section 2.4.

[26] The Baoding Military Academy was founded in 1902 in response to China's military defeats in the late 19th century. It played a crucial role in introducing modern military training, organization, and tactics. Many of its graduates became prominent figures in China's subsequent military and political history. Due to the broader political and military upheavals, this academy was ceased operations between 1909 and 1911, but was reorganized and reopened in 1912. It finally closed its doors in 1923 because of frequent warfare.

prefectural distribution of the number of cadets both before and after the establishment of the Republican government in 1912, proxying for military participation in different regimes.

Second and third, we account for the number of political and social associations established within a region, respectively. Civilians could demonstrate their awareness of the social contract through their involvement in political and social activities (Rousseau, 1762). Under autocratic regimes like pre-1912 Qing China, the formation of civilian organizations was tightly prohibited. After 1912, civilians have shown increased political engagement, driven by their desire to exercise civil rights and contribute to social governance.

Based on Zhang and Li (1999), we compile the universe of civilian organizations that were established between 1912 and 1926. Out of the 772 organizations, we identified 211 political associations that aimed to express political opinions, support state-building efforts, and offer insights on local governance. We also identified 162 social associations which aimed to provide charitable public goods, social assistance, and support for vulnerable groups such as women and teenagers.

3.3. Patriotism with monetary contribution: government bond subscriptions

Another way for patriots to demonstrate their support for the state was through financial contributions, primarily by subscribing to government-issued bonds. A detailed discussion of the development of Chinese government bonds market is outlined in section 2.2 and 2.3. Due to data availability, we are only able to assemble government bond issuance records at the national and provincial level. To the best of our knowledge, there exists no systematic record of prefecture- or county-level bond issuance. During the sample period (1912–1926), the governments issued in total of 139 bonds, including 29 by the central government and 110 by the provincial governments. We digitalize bond characteristics including targeted amount, collected amount, interest rate, maturity, purpose of issuance, and whether the bonds were guaranteed or collateralized. These bonds amounted to a total collected value of 500.4 million at the national and 151 million at the provincial level. More than 50% of the provincial bonds were issued in Jiangxi, Guangdong, Shandong, Zhejiang, and Hunan provinces. Lacking data on the geographic distribution of national bond subscriptions, in the regression analysis we focus on provincial bonds, relying on the assumption that they are primarily subscribed to by the local population.

The data is obtained from various sources, including “Historical materials on government bonds in China (1894–1949)” by Qian (1984), the statistics from the Survey Department of

Southern Manchuria Railway Company (1930), and the "Provincial Bonds" by Ling (1928). We also meticulously complemented missing information using the "Fiscal Chronicles" from each provincial gazetteer.

3.4. Modern banking development

Our main dependent variable, modern banking development, is measured by the number of modern Chinese banks (including headquarters and branches) in each prefecture each year. This dataset was manually collected mainly from gazetteers (*fangzhi*), encyclopedic references centered on specific administrative divisions such as counties, prefectures, or provinces, compiled by the pertinent authorities. Our dataset incorporates gazetteers released between 1933 and 2018, including some reprints of earlier editions. For comprehensive accuracy, we enriched this dataset for comprehensive accuracy by incorporating banks omitted in the gazetteers using the Banking Yearbooks (1934–1937) and pertinent historical archives. The complete list of gazetteers and data sources for banks is detailed in the Supplementary Materials of Lin et al. (2021).

Our analysis primarily concentrates on modern banks established by Chinese while excluding foreign banks in China because the latter primarily focused on the foreign exchange markets and were relatively less impacted by Chinese domestic policies. Chinese modern banks could be further categorized into official and private banks based on the nature of their founding bodies. Official banks were set up by official entities like government bodies and private banks were founded independently by private sector entities. In particular, we classify the few joint ventures between government and private entities as official bank given their direct political connection.

Table 1 reports the summary statistics. Between 1911 and 1926, each of the 286 prefectures had, on average, 1.92 Chinese modern banks. The standard deviation is large: 54.11% prefectures-year did not have any banks throughout the sample period, while Songjiang Fu, the prefecture where Shanghai sitted, alone had 101 banks in the year 1926 (Lin et al., 2021).

3.5. Instrumental variable: Massacres

To further alleviate endogeneity issue, we use the occurrence of massacre in the founding period of the Qing dynasty (1644–1661) to instrument the anti-tax unrests in late Qing. During the transition from the late Ming to early Qing Dynasty, the Qing army conducted brutal massacres to consolidate control, resulting in significant violence and high casualties. These massacres created a collective memory, increasing the propensity for unrest against the Qing

government during the late Qing period. The locations of these massacres followed the Qing army's conquest across inland China, which were highly destructive to local economies, making it unlikely that they directly promoted banking development due to any overlooked economic conditions.

Drawing upon the History of the Southern Ming Dynasty (Gu, 1997), which meticulously surveyed the massacres during this tumultuous period, we identify 62 out of 1,503 counties within our sample regions that had experienced at least one massacre. After summing up to the prefecture level, 54 out of 286 prefectures had experienced one to three times of massacres. The geographical distribution of massacres and anti-tax unrests are depicted in Figure 4.

3.6. Baseline controls

We include a vector of baseline controls that might affect both anti-tax unrests and banking development. Additional controls will be discussed and included in section 5.3.

First and foremost, population size is relevant as it might be the best available measure of the overall economic foundation in historic China. Both the anti-tax unrests and banking markets are likely to be more extensive in more populous areas. Hence, we control for the natural logarithm of the population in 1910 interacting with post-1914 dummy. We choose the year 1910 to avoid the feedback effect from banking development while considering data availability. The data source is Cao (2001).

Besides population, we consider geographic factors that could correlate with the distribution of both anti-tax unrests and banking distribution. These include (1) the land area of the prefecture (log), which can influence the scope and reach of financial services, (2) the prefecture's distance to the coast (log), as coastal areas were traditionally more open to trade and external influences, (3) the river length within each prefecture (log) because rivers have historically facilitated trade and economic activity, and (4) altitude (log) and ruggedness of the terrain, as they can impact the ease of communication and transport, thereby influencing the occurrence of unrests as well as bank establishments. The data source is the basemap of 1911 in CHGIS (version 6). Finally, we control for the logarithm of distance to the capital, Beijing. Being closer to the political center could mean more significant political and economic influence, potentially affecting the civilians' attitude to the state and banking development.

4. Patriotism, civic engagement, and government bonds subscription

In this section, we provide evidence suggesting that anti-tax unrest, which we proposed as an ex-ante measure of social contract awareness, directly translates into patriotic behavior after the establishment of the new Republican government in 1912. This is demonstrated through active non-monetary civic engagement and monetary contributions to the state. The underlying rationale is that individuals who were aware of the social contract and intent on dissolving their contract with the Qing regime were deeply patriotic. They would actively contribute to the formation of the nascent Republican state.

4.1. Anti-tax unrests and civic engagement

We measure civic engagement between 1912 and 1926 from three dimensions - military, political, and social participation, each reflecting a different aspect of how civilians contribute to the state. We employ a cross-sectional regression as follow:

$$Civic\_engagement_i = \alpha + \beta \times Anti\text{-}tax\_unrests_i + \gamma \times \mathbf{X}_i + \varepsilon_i \quad (1)$$

where $Civic\_engagement_i$ refers to one of the three measures of civic engagement in prefecture i between 1912 and 1926. $Anti\text{-}tax\_unrests_i$ denotes the total number of unrests related to anti-tax appeals in each prefecture between 1902 and 1911. If the anti-tax unrest indeed captures the awareness of social contract among local populace, we should see the coefficient β to be significantly positive, indicating that the awareness of social contract was translated into the civilians' patriotic sentiment towards the government. The vector $\mathbf{X}_i$ denotes a set of baseline population and geographic correlates, including the logarithm of prefectural population in 1910, the logarithm of prefectural land area, the logarithm of the prefecture's distance to the coast, the logarithm of the river length within each prefecture, the logarithm of the prefectural altitude, the ruggedness of the terrain, and the logarithm of the prefecture's distance to capital (Beijing). The standard errors are robust.

First, we investigate whether anti-tax unrests during Qing dynasty were associated with higher military participation in the new Republic political regime, as in social contract theory, military participation ("life" contribution) is an important way through which civilians demonstrate their loyalty and commitment to the state (Rousseau, 1762; Polanyi, 1944; Caprettini and Voth, 2023). Sourcing from Chen (2006), we digitalized the enrollment records of the Baoding Military Academy (1902–1923) and construct the cross-prefectural distribution of the number of cadets both before and after the establishment of the Republican government

in 1912, proxying for military participation in different regimes.

The baseline results are presented in Panel A of Table 2. We begin our analysis by regressing the number of cadets after 1912 on the number of anti-tax unrests between 1902 and 1911. The result (column 1) reveals a positive association between late Qing anti-tax unrests and the military participation during Republican era. Introducing demographic and geographic controls (column 2) reduces the coefficient by approximately 44%, yet the influence of anti-tax unrests on military participation remains significantly positive. Quantitatively, an additional anti-tax unrest event prior to 1912 is associated with an increase of 4.1 cadets, which translates to a 19% increase relative to the average (21.6 cadets). In column 3, we explore how anti-tax unrests influenced changes in cadet numbers before and after 1912.[27] The results indicate a significant rise — 26% when evaluated at the mean —suggesting that the rise in patriotic engagement was markedly pronounced in regions with a higher frequency of unrests.

In the same vein, we investigate whether more political and social associations were formed after 1912 in regions with heightened density of anti-tax unrests before 1912. The results are presented in Panel B of Table 2. It is suggested that the correlations between anti-tax unrests and both political and social associations are significant both statistically and economically. After controlling for population and geographic factors, one anti-tax unrest prior to 1912 was associated with a 139% increase in the number of political association (column 2) and a 120% increase in the number of social associations (column 4). These findings provide strong evidence that protesters who were engaged in anti-tax movements during the late Qing era transformed into committed patriots in the Republican era, actively participating in the establishment and support of political and social institutions.

A potential alternative is that anti-tax protesters during the late Qing might have adopted anarchism, thereby diminishing their interest in participating in state-building during the early Republican era. To examine to what extend this alternative is significant, we compiled data on anarchist associations across each prefecture from 1912 to 1926. Details on the development of anarchism in China and our empirical analysis are provided in Appendix A.1. The empirical results, shown in Appendix Table B1, indicate a weak or non-existent correlation between anti-tax unrests and the presence of anarchist associations. This suggests that the anti-tax protesters, rather than turning towards anarchism, likely transformed their activism into patriotic support

[27] The correlation between anti-tax unrest and the cadets before 1912 is low and not significant. We do not perform a regression analysis because of feedback effects.

for the new government.

4.2. Anti-tax unrests and government bond subscriptions

We now formally examine the influence of patriotic sentiment on government bond subscription, an important manifestation of "monetary contribution" to the state. This aspect is crucial as it represents the main channel through which anti-tax unrests fostered ex-post banking development. We assembled data on provincial bonds between 1912 and 1926, and constructed the following variables for each bond: the target value, the actual amount raised (collected value), interest rate, maturity, and an indicator for whether the bonds were collateralized (typically by tax or customs revenue). Additionally, we classified the purpose of bond into categories: economic development, military funding, and disaster relief. In the regression, we aggregate bond level variables to province-year level. Our analysis of government bonds is constrained to the provincial level because of data availability. While a few prefectures and counties also issued local debts and bonds, systematic records of the prefectural or county-level issuances are unavailable.

As outlined in Section 2.2, the outbreak of WWI shocked the Chinese fiscal system in the sense that Western countries largely disrupted financial support to the Chinese government, leading to an abrupt increase in financial need in domestic markets. Accordingly, we utilize a Difference-in-Differences (DiD) strategy, with the first difference being the regional variations in patriotic sentiment, as measured by anti-tax unrests, and the second difference being the temporal difference before and after 1914. The regression model is structured as follows:

$$CollectedValue_{p,t} = \alpha + \beta \times Anti\text{-}tax\_unrests_p \times Post1914_t + \gamma_1 TargetValue_{p,t} + \gamma_2 InterestRate_{p,t} + \gamma_3 Collateral_{p,t} + \gamma_4 Maturity_{p,t} + \gamma_5 \times \mathbf{X}_p \times Post_t + province_p + year_t + \varepsilon_{it} \quad (2)$$

where $CollectedValue_{p,t}$ refers to the actual amount raised (in million yuan) in province p in year t. [28] $Anti\text{-}tax\_unrests_p$ denotes the number of unrests related to tax-resistance between 1902 and 1911 in province p. $Post_t$ is a dummy variable that equals one for years after the outbreak of WWI (1915-1926) and zero otherwise. We include control variables which generally affect bond pricing and issuance efficiency: $TargetValue_{p,t}$, $InterestRate_{p,t}$ $Collateral_{p,t}$ and $Maturity_{p,t}$, which denote the total target amount (in million yuan), bond

[28] The national bonds issued by the central government were subscribed by people across the country. It is ideal to include the local subscription of national bonds to measure people's contribution in government bonds. Unfortunately, this data is not available. As a compromise, we use only provincial bonds, under the assumption that these bonds were primarily subscribed by local residents. To avoid potential biases from central government influence, we exclude the province of *Zhili*, the seat of the central government.

interest rate, whether the bonds are collateralized, and years of maturity, respectively. The latter three variables are average of all bonds issued in province *p* in year *t*, weighted by target value. The vector $\mathbf{X}_p$ refers a set of baseline controls, including the logarithm of provincial population in 1910, the logarithm of provincial land area, the logarithm of the province's distance to the coast, the logarithm of the river length within each province, the logarithm of the provincial altitude, the ruggedness of the terrain, and the logarithm of the province's distance to capital (Beijing). Given these are cross-sectional static measures, we interact each of them with $Post1914_t$, assuming that their effects might change before and after the outbreak of WWI. Province and year fixed effects are controlled, and the standard errors are clustered at province level.

The findings are demonstrated in Table 3. Column 1 focuses on the overarching effect of patriotic sentiment on the funds raised by provincial government through bond issuance. The findings align with our hypothesis: regions demonstrating higher levels of social contract awareness experienced notably higher bond collection after 1914. Specifically, while each provinces had experienced on average 15.2 anti-tax unrests before 1912, each additional unrest correlates with a 0.03 million yuan increase in fund raised, amounting to a significant 5.3% increase when evaluated at the mean.[29] To delve deeper, we differentiate the effects of patriotism on different types of bonds based on their intended purposes - economic development, military funding, and disaster relief (columns 2 – 4). It is shown that patriotic sentiment significantly boosted the success rates of bonds issued for economic development, whereas bonds aimed at military or administrative expenses do not see the same effect. These findings are consistent with the historical narratives that bonds issued for military or administrative expenses were more likely to be collected through the government's apportionment rather than voluntary subscription. This distinction also underscores that patriot with a sophisticated understanding of national interest prioritized economic advancement as a long-term benefit for the country.

An alternative explanation for the heightened subscription to government bonds in patriotic regions could be that government bonds offered better investment opportunity compared to other available options, and this differential was coincidentally pronounced in areas with strong patriotic sentiment. However, anecdotal evidence suggests this is unlikely.

[29] An alternative way is to use the success rate, defined as the amount collected divided by target amount, as the dependent variable. However, there are cases where some provinces did not issue any bond in a year. It is hard to define success rate in this case given the denominator is zero. In an unreported test, we look at the effects of anti-tax unrest on success rate, including only province-year that had bond issuance. The coefficient of anti-tax unrest on success rate is positive and significant.

Investing in government bonds was highly risky, as the credibility of the new government was not yet established in early Republican and the default rate on the government bonds were proven to be high due to the severe financial deficits faced by the government.[30] Moreover, while the average interest rate on provincial bonds in our collected sample was 5.1%, ranging from 0% to 12%, the interest rates from alternative investment opportunity, measured by private loan rates[31], were significantly higher. We obtain the records of 2,142 loans between 1912 and 1926 from the China Historical Interest Rate dataset (Chen et al., 2016) [32]. The average annual rate for these loans was 41.93%. Even after removing outlier loans such as usury with rates above 100%, the average reached 18.12% across 2,047 loans.

Based on these 2,047 loan records from 1912 to 1926, we calculated the average loan rate at the province-year level and incorporated these rates as an additional control variable in Model (2). The results, presented in Appendix Table B2, reveal that local loan rates exerted minimal (insignificant) influence on the subscription to government bonds.

Overall, by arguing that the number of anti-tax unrest incidents prior to 1912 reflects the social contract awareness of local citizens, we demonstrate that this awareness was transformed into patriotic sentiment and subsequently channeled into efforts towards state formation under the new government. These efforts included increased military participation, the establishment of political and social associations, and subscriptions to government bonds following the government's financial difficulties after 1914. Notably, the subscription to government bonds emerged as a crucial channel through which the nascent modern banks found an engine for development.

4.3. Political opportunism

Some may contend that anti-tax unrest could signify political opportunism, with participants potentially signaling loyalty to a prospective new government in hopes of securing greater political influence in the future. In Section 2.4, we briefly discussed this possibility,

[30] In 1921, Zhou Ziqi, the Minister of Finance of the central Government, stated in a report "*If we follow the current government debt regulations and pay the principal and interest on schedule, it would require as much as 39.7 million yuan. Given the current financial situation, it would be impossible to manage this*." (Qian, 1984, pp.14-15)

[31] Prior to 1926, China's financial markets were underdeveloped, with limited financial instruments available outside the localized loan market. They included: the Shanghai stock market that came into existence since the late 1860s but mainly opened to foreigners or Chinese residing inside the Shanghai concession; a Beijing stock exchange that was established only in 1918; and a nascent corporate bonds market that did not emerge until the 1920s (Zhu, 2022). Thus, local borrowing and lending rates provide a reliable gauge of the comparative returns on investments during this period.

[32] Chen et al. (2016) constructed the China Historical Interest Rate Database, which comprises 23,489 records of private lending and borrowing spanning from 1563 to 1950. These records were compiled from diverse sources such as private documents, newspapers, periodicals, economic surveys, and academic publications. This dataset was used in Chen et al. (2022) which provides an extensive description of the dataset.

suggesting that anti-tax unrest is more likely to represent patriotism, given the low likelihood of success and the absence of a new authority to which loyalty could be pledged. In this section, we empirically test this hypothesis by using "merely symbolic" alignment with the Xinhai Revolution as a proxy for political opportunism.

The Xinhai Revolution was the movement that directly led to the collapse of the Qing court, sparked by the Wuhan Uprising on October 10, 1911. Following the uprising, many other regions—provinces, prefectures, and counties—aligned formally by declaring their abandonment of the Qing court. A large proportion of these declarations were made by Qing officials and local elites, leading to a relatively bloodless revolution on the national scale.[33] This lack of widespread violence was partly due to the opportunistic nature of officials who betrayed the Qing court, strategically aligning themselves with the revolutionary forces in direct response to shifts in power.[34]

Sourcing data from the *Historical Atlas of the Xinhai Revolution* (Xinhai Revolution and Wuchang Uprising Memorial Museum, 1991), we manually identified 421 local alignments, of which 401 fell within our sample region. Based on the historical process of these alignments, we excluded those achieved through military conquest or that were ultimately unsuccessful. The remaining 293 alignments, identified as relatively "symbolic", are considered to be more "opportunistic" in nature. Note that we do not claim the Xinhai Revolution was purely opportunistic; indeed, we believe that most of the revolutionaries were genuinely patriotic. Rather, we suggest that, compared to those who initiated violent conquests or participated in earlier unrests in previous decades, the symbolic aligners of the Xinhai Revolution were more likely motivated by political opportunism.

We use the ratio of counties that "merely symbolically" aligned with the Xinhai Revolution within each prefecture as a proxy for the intensity of opportunism, referring to this variable as *Symbolic Xinhai alignment*.

In Appendix Tables B4 and B5, we replicate models (1) and (2), replacing the main

[33] To illustrate the ease of alignment, on November 5, 1911, in response to requests from Suzhou gentry and merchants, Jiangsu Governor Cheng Dequan declared Jiangsu's "independence". He converted the governor's office into a military governor's headquarters, replaced the flags at the main entrance, and had a few roof tiles removed from the main hall with bamboo poles to symbolically "destroy for the revolution". With these simple acts, the "revolution" was considered complete. (Li, 2013)

[34] To illustrate an example of opportunistic alignment, we reference Liu Xianshi, who served as the magistrate of Xingyi county in Guizhou province during the Qing dynasty and had previously aided the Qing government in suppressing local peasant and secret society uprisings. After the outbreak of the Xinhai Revolution, he initially intended to suppress the uprising. However, upon learning that Guizhou's provincial capital had fallen to revolutionary forces, Liu recognized that supporting the revolution would be more advantageous and chose to betray the Qing court, aligning strategically with the new order. As a political outcome, he later rose to the position of Guizhou provincial governor under the early Republican government. (Worthing, 2007)

independent variable with *Symbolic Xinhai alignment* for Appendix Table B4, and with *Symbolic Xinhai alignment* × *Post1914* for Appendix Table B5. Additionally, we include both *Symbolic Xinhai alignment* and *Anti-tax unrests* to conduct horse-race regressions, testing whether patriotism or political opportunism more effectively predicts civic engagement and government bond subscription. The results indicate that political opportunism does not predict civic engagement nor government bond subscription within the new political regime. When both political opportunism (*Symbolic Xinhai alignment*) and patriotism (*Anti-tax unrests*) are included, the coefficients of anti-tax unrests remain significantly robust, with magnitudes comparable to those in Tables 2 and 3.

5. The effect of patriotic sentiment on banking development

5.1. Baseline results

To identify the effect of patriotic sentiment on banking development, we employ a DiD approach, comparing the number of banks before and after WWI across prefectures that exhibited varying levels of awareness of the social contract. Figure 2 depicts the spatial distribution of anti-tax unrests and the growth of modern Chinese banks before and after 1914. It is observed that prefectures with frequent anti-tax unrests experienced more rapid bank growth after 1914. Empirically, the DiD specification is as follow:

$$Banks_{it} = \alpha + \beta \times Anti\text{-}tax\_unrests_i \times Post1914_t + \gamma \times \mathbf{X}_i \times Post1914_t + pref._i + year_t + \varepsilon_{it} \quad (3)$$

where $Banks_{it}$ refers to the number of modern Chinese banks (including headquarters and branches) in prefecture i in the year t between 1912 and 1926. $Anti\text{-}tax\_unrests_i$ denotes the total number of unrests related to anti-tax appeals in each prefecture between 1902 and 1911. It is a proxy for civilians' patriotic sentiment toward the Republican regime. $Post1914_t$ is a dummy that equals one for years after the outbreak of first world war (1915–1926) and zero for years in and before (1912–1914). The coefficient β of the $Anti\text{-}tax\_unrests_i \times Post1914_t$ captures the difference-in-differences effects of social contract awareness in the number of banks established after the outbreak of WWI. If the civilians' patriotic sentiment was translated into a trust towards the government, therefore towards the banks that underwrote government debt and issued state-backed banknotes, we should expect more banks to be established in the more patriotic regions after 1914. In other words, we expect the coefficient β to be significantly positive, indicating a positive causal relationship between patriotic sentiment and establishing banks. The prefectural fixed effects ($pref._i$) and the year

fixed effects ($year_t$) are included to absorb all the time-invariant prefectural effects on banks, and all the annual shocks common to all prefectures, respectively. The regression is clustered at the prefecture level.

The vector $\mathbf{X}_i$ denotes a set of baseline controls, including the logarithm of prefectural population in 1910, the logarithm of prefectural land area, the logarithm of the prefecture's distance to the coast, the logarithm of the river length within each prefecture, the logarithm of the prefectural altitude, the ruggedness of the terrain, and the logarithm of the prefecture's distance to capital (Beijing). Given they are cross-sectional static measures, we interact each of them with $Post1914_t$, assuming that their effects might change before and after the outbreak of WWI.

The baseline results are reported in Table 4. To provide a benchmark, we begin our analysis by regressing the number of banks on $Anti\text{-}tax\_unrests_i \times Post1914_t$, controlling only the prefecture and year fixed effects. The result is reported in column 1. The interaction term between anti-tax unrests and the post-1914 dummy has a significant and positive coefficient, suggesting the positive effects of civilians' patriotic sentiment on banking development. We then incorporate demographic and geographic controls (column 2). Albeit the coefficient of interest diminishes by approximately 30%, the effects of anti-tax unrests on the number of banks remain significant and positive. The economic magnitude is substantial - an increase of solely one anti-tax unrest event before 1912 correlates with an increase of 0.48 in the number of banks, representing a 25% increase when evaluated at the mean (1.92 banks).

To provide additional evidence on whether there was a break in the banking development in high and low-patriotic regions only after 1914, we examine the parallel trend assumption by regressing the number of banks on the interaction terms between the anti-tax unrests and a complete set of year dummies between 1912 and 1920, a shorter window around the shock event. The year 1914 is omitted as the reference point. Controls interacted with year dummies and the prefectural and year-fixed effects were also included. The estimated yearly coefficients and confidence interval at 95% level are depicted in Figure 3. It is observed that the coefficients of the anti-tax unrests were close to zero in 1912 and 1913 but turned out to be significantly positive after 1914. The figure suggests that the parallel trend assumption is satisfied, and the shock of WWI in 1914 was sharp. One main concern that the pre-trend period is too short (only two years), we conduct an extended version where we prolong the sample period to 1910 to 1920. The result is robust (Appendix Figure B1), and the parallel trend assumption is satisfied.

To examine to what extent the influence of anti-tax unrests (an indicator of social contract awareness *per se*) on banking development operates through the channel of patriotic sentiments, we regress the number of banks on $Anti\text{-}tax\_unrests_i \times Post1914_t$ and $Civic\ engagement\ (1912\text{-}1914)_i \times Post1914_t$ simultaneously, where the civic engagement (1912-1914) refers to either miliary participation, political associations, or social associations between 1912 and 1914, serving as proxies for ex-post patriotic activities. The findings, presented in Appendix Table B3, reveal that the inclusion of civic engagement variables causes the coefficient for anti-tax unrests to largely decrease, even to the point of insignificance, suggesting the channel effects of patriotic sentiment.[35]

5.2. Instrumental variable

While we have employed a DiD strategy to gauge the effects of patriotism on modern banking development, endogeneity might still arise. First, the economic condition is hard, if not impossible, to be fully measured and controlled for. It might be the case that regions with better economic conditions had a populace more exposed to modern ideologies, leading to a heightened propensity for being aware of civic rights. Meanwhile, modern banks would flourish in these regions after the shock in financial demand in 1914. Second, the modern banks in China saw its first genesis in 1897. They brought modern ideologies, which might in return affect civic awareness. In other words, reverse causalities might remain if early modern banks nourished unrest.[36]

We propose an instrumental variable (IV) approach by using the occurrence of massacre in the founding period of the Qing dynasty (1644–1661) to instrument the anti-tax unrests in late Qing. The transition period from the late Ming[37] to the early Qing Dynasty was marked by a series of brutal massacres carried out by the Qing army against the Han Chinese and other ethnic groups who opposed their rule. These events were integral to the Qing dynasty's strategy to consolidate its control over China and were often marked by extreme violence and substantial casualties. Scholars have noted that the Ming Dynasty's population peaked at over 100 million, possibly nearing 200 million in 1630 (Cao, 2001). However, after massacres, the population in the early Qing Dynasty dramatically declined by between 45 and 50 million until 1680 (Cao, 2001). The most famous massacres include those that happened in Yangzhou,

[35] Civic engagement was not employed as the primary independent variable because the scope of patriotic activities expanded over the period under study, rendering the 1912-1914 window too narrow to adequately reflect the entire spectrum of patriotic behavior.
[36] In Appendix Table B6, we present the regression results of banks predicted by anti-tax unrest, and anti-tax unrest predicted by banks between 1902 and 1911. There is no evidence of positive correlation between anti-tax unrest and banks before 1911.
[37] Ming dynasty (1368−1644) is the dynasty prior to Qing dynasty (1644−1911).

Taicang, Datong, and Ganzhou.[38] Drawing upon Gu (1997), we identify 54 out of the 286 prefectures within our sample regions experienced one to three times of massacres.

We posit that the early Qing Dynasty massacres fulfill the inclusive condition necessary for an eligible instrumental variable, as massacres likely have a profound and lasting impact, deeply embedding themselves in the collective memory of the population (Fouka and Voth, 2023). These massacres and the related records that survived, such as the "Record of Ten Days in Yangzhou", became the collective memory of local civilians. This historical traumatic memory would eventually transform into an essential motivation for anti-Qing unrests when the central government's grip weakened after the mid-19th century (Li, 2022).[39] Hence, our hypothesis for the first stage is that regions affected by these massacres would exhibit an increased likelihood of anti-tax unrest.

Furthermore, this instrumental variable arguably satisfies the exclusion restriction. The massacres occurred two and a half centuries before the establishment of modern banks, thereby negating the possibility of reverse causality. Importantly, these massacres were motivated by military, not economic, strategy and followed the trajectory of the Qing army's conquest across China. Moreover, the massacres themselves were destructive to local economies, making it improbable that they would directly promote banking development due to any overlooked economic conditions.

The IV results are presented in Table 5. In panel A, we present the 2SLS regression results where the *Anti-tax_unrests* × *post1914* is instrumented by *Massacres* × *post1914*. The effects of instrumented anti-tax unrests on modern banks are positively significant. Comparing the instrumented coefficient (1.180) in column 2 to the OLS estimate (0.479) in column 2 of Table 4, the effect of the anti-tax unrests under the IV estimation becomes 2.46 times greater than that of the OLS estimation, which does not indicate a high coefficient inflation issue (Jiang, 2017). The Kleibergen-Paap F-statistics are all larger than 10, suggesting little concern of weak instruments. Panel B presents the first-stage results. As shown, the historical massacres positively and significantly predict the occurrences of anti-tax unrest. This suggests that regions that experienced more intense historical trauma showed a greater propensity for

[38] For example, the Yangzhou Massacre (1645) occurred shortly after the Manchu conquest of China. Led by Prince Dodo, the Qing forces attacked the city of Yangzhou to suppress resistance against the new Qing rulers. The massacre lasted for ten days, with estimates of the death toll varying widely. The event is notorious for its brutality and is seen as a symbol of Qing domination over the Han Chinese population (Gu, 1997).

[39] Even senior bureaucrats in the Qing government could sense the potentially devastating long-term effects of the massacres that occurred during the founding period. For example, Zhao Liewen, a disciple of Zeng Guofan, one of the most potent senior officials in the late 19th century, said, "*Our (Qing) state could be subverted within 50 years... the massacres during the founding period were too gruesome. Even if the emperor has very good virtue, he could not save our state from its fate.*"

resistance against government taxation.

In Appendix Table B7, we present the reduce form regression where we regress the number of banks on number of massacres interacting with post1914 dummy (column 1). The coefficient is positive and significant. Next, when both massacres and anti-tax unrest, interacted with the post1914 dummy, are included in the regression (column 2), the significance of massacres diminishes, leaving anti-tax unrests as the primary influencer on banking development. While this regression design inherently contains econometric issues, it provides suggestive evidence that the historical massacres affected banking development by enhancing social contract awareness.

5.3. Additional controls

We now conduct robustness analyses by introducing a range of additional modernization covariates that might affect banking development. Given the DiD specification, the omitted factors would have to induce a break in banking development around the time of the outbreak of WWI in 1914 to confound our analyses. Below, we will describe the rational and the data before presenting the results for each additional control.

First, the weakening of Western powers in China in 1914 arguably altered international trades and fostered local industrial development. The disruptions in production capacities in Western countries during WWI led to a significant decrease in the import of foreign goods and capital into China, along with a marked increase in Chinese exports, which stimulated the growth of China's national industries. Meanwhile, industrial firms generated a high demand for external finance (Rawski, 1989). This raises the concern as to whether, and if so, to what extent, the banking development after 1914 was driven by industrialization. To test this, we compile data on the number of new industrial firms established in each prefecture in the previous year. The data is sourced from Du (2014). The results are presented in column 1 of Table 6. As seen, the number of industrial firms were significantly and positively associated with the number of banks. Nonetheless, it does not influence the effects of anti-tax unrests on banks. The magnitude of coefficient of the interaction term between anti-tax unrests and post-1914 dummy changes little.

Second, the presence of foreign powers in China was notably established through treaty ports, where foreigners were permitted to reside and engage in trade. Both foreign banks and Chinese modern banks were predominantly located in these treaty ports. By 1926, 54 treaty ports had been opened across 42 prefectures, and 53.5% (426 out of 796) of modern Chinese

banks were located within these treaty port areas (Lin et al., 2021). These ports connected China to international trade, technology, and culture, acting as the catalysts for the country's modernization (Ma, 2019). Consequently, these ports likely became hubs for individuals with modern ideologies, including enhanced civic awareness, which might contribute to the development of the banking sector. Hence, we incorporate the number of treaty ports in each prefecture in the previous year as another control variable, with the data from Yan (2012). Alternatively, we utilize the custom duty income in these treaty ports to proxy for an overall openness and trade shock effects. The data of import and export duties are obtained from the Historical Materials of Chinese Maritime Customs: 1859–1948 (Chinese Second Historical Archive, 2001). As shown in column 2 and 3 of Table 6, neither the presence of treaty ports nor the duty alters the relationship between anti-tax unrests and the development of modern banks.

Third, the evolution of civic awareness is likely intertwined with the presence of educated scholars or elites. To clarify whether the observed impact of anti-tax unrests on banks stems primarily from patriotic sentiment or is merely a secondary manifestation of human capital concentration, we control the interaction term between the logarithm of the civil examination quota and a post-1914 dummy. The quota refers to the fixed number of candidates permitted to pass the civil examination in each prefecture, which was determined by the central government and remained almost unchanged since the 18th century. It measures the historical accumulation of human capital in each region (Bai, 2019; Lin et al., 2024). The results are presented in column 4 of Table 6. It is shown that the human capital effects did not alter banking development before and after 1914, leaving the effects of anti-tax unrests remain largely unchanged. This affirms the distinct and substantial role of patriotism independent of the human capital.

Fourth, the post-1914 banking development might be confounded with the significant advancements in communication infrastructure, including telegraph, railway networks, as well as postal routes. These developments in transportation and information technologies have been found to facilitate the expansion of modern banks (Lin et al., 2021; Chen et al., 2023; Zhao, He and Yu, 2023). To rule out the possibility that modern banking development after 1914 was shaped by transportation and communication infrastructure, we control for the lagged number of telegraph stations, lagged number of railway stations and lagged number of postal offices in each prefecture. The data source is referenced in Lin et al. (2021). As shown in column 5 of Table 6, their influences on modern banks were relatively minimal during our sample period.

The role of civic awareness in the development of the banking sector remains predominant.

Fifth, it is pertinent to consider the potential confounding effects of civil wars and natural disasters, as these events could have different impacts on banking development before and after 1914. As a benchmark, such adverse events could hinder banking development due to their detrimental effects on the economic environment. However, after 1914, governments might resort to issuing domestic bonds as a solution to these events. This could, in turn, stimulate the banking sector, as banks often underwrote bond issuance. In addition, the way the government responds to wars and natural disasters can significantly alter the patriotic sentiment among the populace (Caprettini and Voth, 2023). Sourcing from Chronicles of major battles in China's modern military history (Shizhengchu, 1967) and Chinese Academy of Meteorological Sciences, China Meteorological Administration (1981), we count the number of civil wars and natural disasters (flood and drought) that occurred in each prefecture in the previous year. Presenting in column 6 of Table 6, we continue to find a sharp divergence of banking development across regions conditional on social contract foundation.

Sixth, as discussed in Sections 2.4 and 4.3, political opportunism raises concerns about the reliability of the anti-tax unrest measure. Using symbolic Xinhai alignment—the ratio of counties that symbolically aligned with the Xinhai Revolution (see Section 4.3 for data source and variable construction)—as a measure for political opportunism, we conduct a horse-race regression. As shown in column 7 of Table 6, the effects of anti-tax unrests remain robust.

In column 8, we simultaneously include all the aforementioned additional controls. Remarkably, the coefficient of the interaction term *Anti-tax_unrests* × *post1914* remains positive and significant. Its magnitude (0.413) only diminishes by 13.78% compared to the baseline presented in column 2 of Table 4 (0.479).

In column 9, we employ the instrumental variable approach where the *Anti-tax_unrests* × *post1914* is instrumented by *Massacres* × *post1914*, while including all the aforementioned additional controls, the result is robust. The effect magnitude (0.991) diminishes by 16.01% compared to the baseline IV presented in column 2 of Table 5, Panel A (1.180).

We also conduct a robustness test at the county level, considering the variation in the number of banks and anti-tax unrests within prefectures.[40] Note that we chose not to use county-level data as our baseline due to the severe zero-inflation issue: most of the banks and

[40] In our sample, the 286 prefectures encompass 1,503 counties. This equates to an average of approximately 5 counties per prefecture.

unrests concentrated in prefectural capitals and leading to a high proportion of zero observations in the rest of the sample. For instance, between 1912 and 1926, 77.5% of the county-level observations for banks recorded zero banks, in contrast to 33.6% at the prefecture level.

At the county-year level, we employ the same DiD and DiD-IV strategy except that the measures are constructed at the county level. The results are presented in Table 7. We begin with a baseline model devoid of any controls (column 1), followed by progressively incorporating basic demographic and geographic controls (column 2), and then further adding additional controls as described above (column 3).[41] Results at the county level are robust. With one additional anti-tax unrest between 1902 and 1911, a county will see roughly 0.43 more banks after 1914 (column 2). This is translated into an increase of 0.12 standard deviation of banks for one standard deviation increase in anti-tax unrests. The effect magnitude is close to that of the prefecture-level estimate (0.17 standard deviation increase) in column 2 of Table 4. Columns 4-6 further present results using the IV approach, where we use the number of massacres that a county experienced during early Qing to instrument anti-tax unrests that occurred in the county in late Qing. All results remain consistent, although their statistical significance decreases, possibly due to the reduced predictive power of the instrumental variable at the county level.

5.4. Falsification tests

We further conduct a series of falsification tests related to economic and banking development, aiming to bolster the external validity of our premise that anti-tax unrests capture people's consciousness of social contract, which fostered patriotism, as opposed to being driven by other factors.

First, it might be that the frequency of anti-tax unrests merely reflects the level of tax burden. Specifically, more unrests might occur in regions where the government imposes excessively burdensome taxes. In addition, tax level might be correlated with economic foundation, which could affect the development of banking. To address this concern, we collect two data sets to measure tax level. The first is the collected land tax per capita in 1820, sourcing from *Statistics on Chinese Historical Demography, Land, and Land Tax* (Liang, 2008). This data is the most recent available records of prefectural tax level during Qing period. The second

[41] All controls are accordingly adjusted to county level except the population in 1910, number of wars, and number of natural disasters, which are only available at the prefecture level.

is the number of commercial tax (*likin*) bureau in each prefecture in late Qing period (around 1909), sourcing from *A History of China's Lijin Tax* (Luo, 1936). While, to the best of our knowledge, there are no systematic records of the collected values of commercial tax, the number of commercial tax bureaus represents the strength of tax collection efforts.[42] We replicate the regression of equation (3) while replacing the anti-tax unrests with the 1820 land tax per capita (log) and the number of commercial tax bureau. The results are presented in column 1 and 2 of Table 8. As shown, the tax level did not, or only weakly, affect the number of banks before and after 1914. In Appendix Table B8 Panel B, when regressing the number of banks on both anti-tax unrests and tax burden, the coefficients on tax burden turn insignificant. It is suggested that the tax burden did not directly promote modern banking development. This test provides supportive evidence that the metric of anti-tax unrests is capturing, at least to some extent, people's attitude towards government rather than merely the tax level.

Next, we attempt to identify the nuance between patriotism and nationalism. Patriotism stems from a sophisticated understanding of the social contract between civilians and the state, characterized by a constructive engagement with civic duties and state governance. According to Orwell (2018), patriotism means "devotion to a particular place and a particular way of life" and has "no wish to force upon other people". Conversely, nationalism, particularly when radicalized, can evolve into xenophobia, leading to destructive actions.

We propose two proxies for the xenophobia activities that were radical and impulsive.[43] For one, sourcing from Boxer Protocol (1901), we construct a dummy variable, *Boxer*, indicating the occurrence of the Boxer Rebellion (1899−1901) in each prefecture. The "Boxers" were mainly peasants from northern China who attributed the state's crisis entirely to the foreigners. They were supporters of the Qing government, and their objective was to "revive the Qing and destroy the foreigners" ("fu Qing mie yang") (Esherick, 1987). As anti-foreign sentiment reached a violent peak, many foreign missionaries and expatriates were attacked or even massacred. For another, we count the number of anti-foreigner unrests in each prefecture between 1902 and 1911, sourcing from Ding and Zhang (1982). The criterion for these

[42] In Appendix Table B7 Panel A, we regress the cross-section of anti-tax unrests on the measures of tax burden, i.e. land tax per capita in 1820 (log) and the number of commercial tax bureau. The results indicate a strong positive relationship between the tax burden and the frequency of anti-tax unrest between 1902 and 1911. The spatial distributions of land tax and of commercial tax bureaus, as well as anti-tax unrests, are presented in panel A and B of Appendix Figure B2.

[43] We highlight here that patriotism does not necessarily lead to xenophobia. The presence of Western powers in Qing China involved the introduction of modern technologies and ideologies. For example, Yangwu Movement (1860−90s) emphasized the importance of assimilating Western knowledge and practices. This perspective was shared by some patriots who advocated for "learning merits from the foreign to conquer the foreign" ("Shi yi changji yi zhi yi").

incidences includes actions such as "attacking foreigners", "attacking missionaries", or "destroying churches". Altogether, we found 101 anti-foreigner unrests, or 8% of all unrest. The spatial distribution of Boxer and anti-foreigner unrests is depicted in panel C of Appendix Figure B2. Given that the spatial distribution of these two proxies is not highly overlapping,[44] we further create a dummy variable to indicate the presence of either the Boxer Movement or anti-foreigner unrests. The regression results using these three placebo treatment variables are presented in columns 3 - 5 of Table 8. Notably, there is no significant impact of xenophobic sentiment on bank growth after 1914, suggesting that radicalized nationalistic activities did not contribute to modern financial development.

Finally, we examine whether anti-tax unrest captures sophisticated social contract awareness other than general discontent or social disorder. To this end, we use similar method to complied other types of unrests from Ding and Zhang (1982) between 1902 and 1911. They include: (1) anti-gentry unrests, defined as actions of resistance or opposition specifically targeting the local elite or land-owning class,[45] (2) banditry activities, referring to groups of individuals engaging in criminal activities such as robbery and violence, and (3) peasant riots, where rural populations protested unfavorable agricultural conditions, land disputes, or natural disasters. We identified 134 (10.6%), 64 (5.0%), and 239 (18.8%) anti-gentry unrests, banditry activities, and peasant riots, respectively. While these activities reflect social disorder and grievances to some extent, they do not necessarily embody civilians' perception of or engagement with the state's fiscal policies or their role in the social contract. The distributions of the three types of unrests are depicted in Panel D-F in Appendix Figure B2, and the falsification test results are shown in columns 6 - 8 of Table 8. The interaction term between placebo unrests and the post-1914 dummy are not significant. These findings align with the intuition that general social disorder would not promote the growth of banks. It supports the use of anti-tax unrests as a proxy for patriotic sentiment rooted in social contract awareness, which is instrumental to the banking development.

[44] The Boxer Rebellion (1899−1901) significantly inflamed anti-foreigner unrest at the national wide. However, in prefectures where the Boxer Rebellion occurred, subsequent anti-foreigner unrest after 1902 were less frequent due to government suppression (Esherick, 1987).

[45] During the late Qing period, anti-gentry unrest overlapped with anti-tax unrest, with a correlation coefficient of 0.67 (significant at the 1% level). This overlap mainly occurred in the rural areas, as some lower-gentry individuals became "bad gentry" who assisted the government in excessive tax collection (Hao et al., 2022). However, it is vital to recognize that anti-gentry and anti-tax unrest are fundamentally different in their focus and target. Anti-gentry unrest are more focused on class-based grievances and inequalities, whereas anti-tax unrest tend to reflect broader issues related to governance and the social contract.

5.5. Exposure to patriotism and bank performance

The above analyses provide evidence that regions with a higher concentration of patriots showed greater willingness to subscribe to government bonds following 1914. This willingness, in turn, made these areas attractive for bank expansion. We now conduct bank level analysis to investigate whether increased exposure to anti-tax unrests indeed enhances bank performance.

We create a time-varying measure of each bank's additional exposure to patriotic sentiment in each year. This is done by calculating the weighted sum of anti-tax unrests in the prefectures where a bank has established new branches within a specific year, with the weighting based on the number of new branches in each prefecture.[46] This weighted sum of unrests is then scaled by the total number of branches in the bank, proxying the bank size, to alleviate the fact that larger banks open more branches. This ratio could be interpreted as the average additional exposure to patriotic sentiment for each branch in the bank in a given year.

If banks strategically open new branches to attract investors for government bonds, a bank's increased exposure to regions with strong patriotic sentiment will result in enhanced bond-holding activities and profitability in the subsequent periods. To measure the outcome variables, we retrieve the panel of financial statements of the 19 major Chinese modern banks from 1922 to 1926, sourced from a survey by the Economic Research Department of the Bank of China (1933). We use return on assets (ROA) as a conventional metric for bank performance, defined as the net profit to total assets ratio (× 100). For measuring bond holdings, it is less obvious since government bonds could enter banks' balance sheets as either reserves for banknotes or marketable securities[47] (Cheng, 2003; Ho and Li, 2014). Historical records suggest that approximately 30% of the issuance of banknotes was backed by government bonds,[48] and that 75% of marketable securities were in the form of government bonds[49]. Note that these figures are adjustable without affecting the overall results. We also calculate the growth of bond holdings and the growth of profits, defined by the bond holding (profit)

[46] For instance, consider a bank that established five new branches within the year—two in Prefecture A and three in Prefecture B. The bank's additional exposure to patriotic sentiment in this year, as measured by anti-tax unrests, is calculated as the sum of the unrests in Prefecture A multiplied by two and the unrests in Prefecture B multiplied by three.

[47] Marketable securities, as listed in bank balance sheets, refer to investments in financial securities that can be easily bought or sold in the market. These are typically liquid assets held by banks to manage short-term needs or for investment purposes, including stocks, bonds, and other financial instruments that can be readily converted into cash.

[48] Since 1928, banks were officially required to back the issuance of banknotes with 40% government bonds as reserve (Braggion et al., 2020). Before 1928, the ratio was not stipulated. With some variation across banks, this ratio was about 30% in the largest official banks in China, including the Banks of China and the Bank of Communications (People's Bank of China, 1983; Bank of China, and Chinese Second Historical Archive, 1991; Bank of Communication, 1995).

[49] Based on a survey of 28 banks between 1921 to 1934, Lan (2005) concluded that more than a third quarter of the marketable securities were government bonds (Lan, 2005).

difference between the current and previous year, scaled by last year's total assets. Furthermore, we construct bank-level controls that might affect banks bond holding and performance, including the bank's total assets (log), cash-to-asset ratio (× 100), and leverage or debt-to-asset ratio (× 100).

To quantify the impact of banks' strategic branch expansion in patriotic regions on their financial outcomes, we perform a bank-year panel regression spanning from 1922 to 1926. This involves regressing the outcome variables (bond holding or profitability) on the bank's yearly additional exposure to patriotic sentiment, alongside control variables. All the explanatory variables are lagged for one year. To account for unobserved, time-invariant characteristics of banks and common annual shocks across the sector, we include both bank and year fixed effects. Standard errors are clustered at the bank level.

The results are reported in Table 9. The coefficient for the time-varying proxy for increased patriotism exposure affect both bond holding and performance positively and significantly. A one standard deviation increases in new exposure to anti-tax unrests led to 0.30 standard deviation increases of growth of government bond holding (column 3) and 0.14 standard deviation increases of growth of profit (column 6). In sum, these bank-level results provide solid evidence that patriotism could precisely boost the bank performance.

6. From patriotism to financial trust: official vs. private banks

Patriotic sentiment complements public trust towards the government, prompting people to subscribe to government bonds despite the unproven government creditability. To subscribe to government bonds, patriots engaged with modern banks that underwrote these bonds, facilitating banking development. In this section, we explore whether this trust in government generalized to financial trust, examining if trust in modern banks was ultimately established independently from government endorsement. To this end, we categorize modern banks into official and private banks, assuming that while the growth of official banks was a direct by-product of trust in government, the rise of private banks reflects, to some extent, the public's general trust in modern financial institutions.

In early 20th century, China was in the nascent stage of modern banking development, and the public was largely unfamiliar with these new financial institutions. Since 1914, the public began engaging with official banks that underwrote government bonds,[50] with their trust in

[50] As elaborated in Section 2.1, the underwriting of government bonds was primarily carried out by official, state-initiated banks. Although some of the largest private banks eventually began to underwrite government bonds, their involvement was

these institutions anchored by the patriotic sentiment. As these official banks matured and demonstrated their reliability and effectiveness, public trust in the overall banking system grew, extending to similar institutions established by the private sector. Moreover, patriotism played a crucial role in enhancing generalized trust levels (Depetris-Chauvin et al., 2020), which facilitated the growth of the private sector.

Empirically, we investigate how patriotism transitioned into trust in banks by examining the dynamic development of both official and private banking sectors. First, to provide a benchmark, we separately examine the effects of anti-tax unrests on official banks and private banks. We use the same DiD specification as in Equation (3) as well as the IV approach, with the only change being the dependent variable, which is now either the number of official or private banks in each prefecture. As seen in Table 10, anti-tax unrests before 1912 were positively associated with growth in both official and private banks post-1914. The effect is notably stronger on private banks: for each additional anti-tax unrest prior to 1912, a prefecture experienced an average increase of 0.16 in official banks (column 3, Panel A) and 0.24 in private banks (column 3, Panel B) after 1914. When evaluated at the mean, a single additional anti-tax unrest before 1912 corresponds to a 13.58% increase in official banks and a more substantial 33.96% increase in private banks post-1914.

While the results show that the impact of patriotic sentiment on modern banks was more pronounced among private banks overall, the analysis primarily compares the periods 1915–1926 and 1912–1914. It might be the case that the treatment effects on official banks appeared earlier than that on private ones, while the private banks developed faster once they gain the trust thus momentum to grow. To test this, we employ an event-study dynamic DiD model where we regress the number of official or private banks on the interaction between anti-tax unrests and year dummies for the years between 1912 and 1926. The method is the same as in Figure 3. The findings, visualized in Figure 5, show distinct patterns in the response of official and private banks to anti-tax unrests and the shock of WWI.

The coefficients for official banks exhibit a sharp jump in 1914. This jump is consistent with the anecdotal evidence that official banks responded more directly to the shock on public fiscal system. Conversely, the coefficients for private banks exhibit a more gradual increase over the years. This pattern reflects the private banking sector's slow but steady engagement in the bond market and a potential rise in public trust towards modern banking institutions. In

delayed and limited.

addition, while the coefficients for public banks plateau after 1914, those for private banks continue to gain momentum. Towards the end of the sample period, the magnitude of the coefficients for private banks surpasses that of official banks. This finding reveals a temporal difference in how public trust influenced official and private banks, providing confirmative evidence that civilians' patriotic sentiment affected the official banks first, then spreading to private ones.

Lastly, we conduct a less formal test to explore the potential channel effects of official banks on private banks. This is done by examining the impact of anti-tax unrests on public banks, while controlling for the lagged number of private banks, and vice versa. As shown in column 1 of Appendix Table B9, the effect of anti-tax unrests on official banks remains robust and significant even when accounting for the presence of private banks. Conversely, when examining the impact on private banks with the inclusion of lagged official banks as a control (column 2), the coefficient of the interaction term between anti-tax unrests and the post-1914 period becomes insignificant. These findings suggest that while the growth of public banks was directly influenced by patriotism, the expansion of private banks was indirectly driven by the growth of public banks. Again, we acknowledge the limitations in the econometric design of this test and treat these findings as suggestive evidence that supports our hypothesis rather than conclusive.

7. Generalization

In exploring the history of banking in China, we illustrate that the initial trust placed in the earliest modern banks was an extension of trust in the government, which in turn was fueled by patriotic sentiment during challenging periods. In this section, we present various anecdotes that support the broader applicability of our findings, suggesting that this conclusion can be generalized to other regions and later stages of banking development.

First, we extend our conclusions to other regions beyond China. In various countries, the establishment of the first modern banks often occurred under governmental auspices, particularly during times of financial shortfall driven by revolutions or wars. These institutions typically started as agents of public finance, with their primary task being the management of government debt (North and Weingast, 1989; He, 2013; Basco and Tang, 2020). The rise of private modern banking sectors generally lagged behind official banks, suggesting a potential

spillover of trust from the public to the private sector. [51]

The Great Britain. The first modern bank in the Great Britain, the Bank of England (BOE), was established in 1694, shortly after the Glorious Revolution of 1688 and during a period marked by several military conflicts. Its primary role was to manage public debt and finance war efforts (North and Weingast, 1989; Weingast, 1997). During the Nine Years' War, the public saw supporting the government through monetary contribution as a "patriotic duty" (O'Brien and Palma, 2023). Consequently, a third of the first government war loan underwritten by the BOE was subscribed on the first day, another third within the following two days, and the entire loan was fully subscribed within ten days (North and Weingast, 1989).

The BOE's efforts to raise capital, which were met with overwhelming enthusiasm, established strong institutional foundations for modern capital markets in England. Throughout the 18th and 19th centuries, private banks began to develop, taking over roles previously filled by traditional institutions like local and small-scale goldsmiths (North and Weingast, 1989). This transition marked a significant evolution in the banking sector, laying the foundation for the modern financial system we recognize today.

The United States. The establishment of the First Bank of the United States (BUS) in 1791 by the Treasury of the US marked the first significant step in American modern banking. The initial sale of BUS stock was deliberately scheduled for July 4, 1791, to coincide with Philadelphia's 15th Independence Day celebration, promoting the investment in the bank as a patriotic act. The 20,000 shares allocated for public sale were sold out within hours, demonstrating the citizens' widespread support to the state (Sylla, 2002; Cowen et al., 2006). Despite its ultimate closure in 1811, the creation of the BUS encouraged states to charter more banks to ensure that banking business was not monopolized by the federal entity (Sylla, 2002).

During the Civil War (1861-1865), the United States faced severe financial challenges with its currency system. To address this issue, the government enacted the National Banking Act of 1863 which authorized national banks to issue standardized banknotes backed by the federal government. In particular, the Act leveraged patriotism as a motivator for both individuals and local banks to exchange their local currencies for national notes. Senator Chandler of Michigan emphasized this sentiment in a speech: " *(Local banks) ... would be*

[51] Similarly to China, various countries had traditional financial institutions before the establishment of modern banks, such as the goldsmiths in Great Britain. These traditional institutions were generally small-scale and relied on local, soft information to operate. Public trust in these banks was based on reputation and unlimited liability. In contrast, modern banks, which are larger and offer broader business coverage, have gradually replaced these traditional institutions over the last two to three centuries.

sufficiently patriotic to come in and take these bonds, pay the money into the treasury, and circulate these notes instead of the rags with which they are now flooding the country." (Million, 1894). The successful enactment of the Banking Act of 1863 played a pivotal role in modernizing the American financial system by establishing a more regulated and efficient banking industry. This provides strong evidence that patriotism complements public trust towards the nation during times of crisis, which stabilizes the financial system and fosters the financial development in the long-term.

Japan. The emergence of modern banks in Japan was also related to government financial activities. Following the Meiji Restoration, the Japanese government introduced Kinroku bonds in 1876 to mitigate resistance to reform and accelerate modernization. These bonds were designed to convert the traditional, lifelong stipends of former samurai into interest-bearing government securities. To facilitate this transaction, the government revised the National Banking Act, permitting chartered national banks to utilize these bonds as investment capital and issue convertible notes based on reserves (Yamamura, 1967; Basco and Tang, 2020). The Kinroku bond issuance largely catalyzed the rise of national banks. The number of banks surged from 6 in 1876 to an impressive 153 over the subsequent three years, with a presence established throughout the country (Tang and Basco, 2023).

8. Conclusion

This paper examines the effects on patriotism on the banking development by exploring the early 20th century China. The outbreak of World War I in 1914 created fiscal challenges for China, prompting the newly established Republican government to issue domestic government bonds despite lacking established governmental creditworthiness. We posit that patriotism played a crucial role in complementing public trust in the government, which in turn facilitated the establishment of banks which underwrote government bonds.

Inspired by social contract theory, we proposed to use the instances of anti-tax unrests during late Qing (1902–1911) as an *ex-ante* measure of awareness of social contract, which was transformed into patriotic sentiment upon institutional change. We show that areas with elevated anti-tax unrest prior to the collapse of the Qing court in 1912 exhibited more state-building efforts during the Republican era (1912–1926).

Using a DiD empirical strategy, we find that regions with heightened patriotic sentiment showed increased subscriptions to government bonds, leading to the flourishing of modern banks post-1914. This main finding remains robust using an IV approach, with additional

economic and social controls, under falsification tests, and at the county level. Using granular bank level datasets, we show that banks with greater exposure to patriotic sentiment demonstrated stronger support for government bonds, leading to enhanced financial performance. Further analysis uncovers a temporal spillover effect of trust in banks, where the influence of patriotism initially focused on official banks and gradually extended to the private banking sector. Lastly, we provide numerous anecdotes supporting the broader applicability of our conclusions beyond China and beyond the early stages of banking development.

To conclude, our paper highlights the crucial role of patriotism as a source of trust in government, which complements trust in the establishment and expansion of modern financial institutions. This study provides new perspectives on the dynamic interaction among civilians, government, and banking development.

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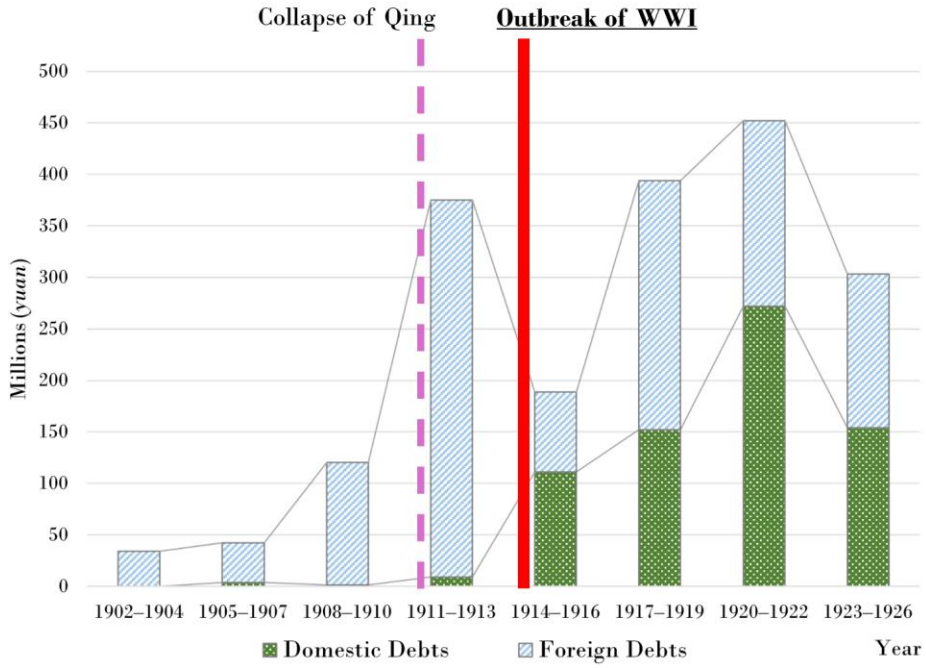
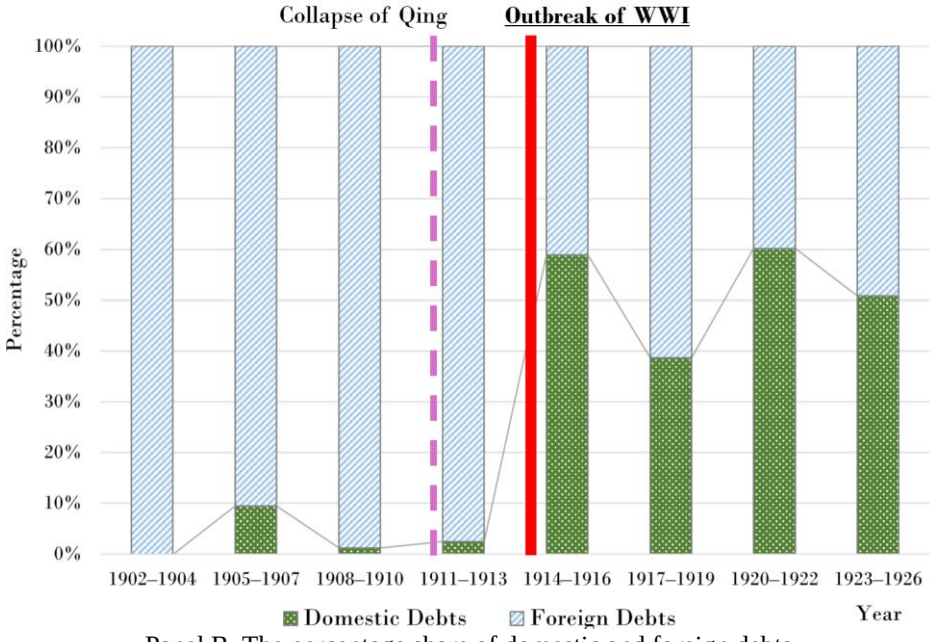
Figures and Tables



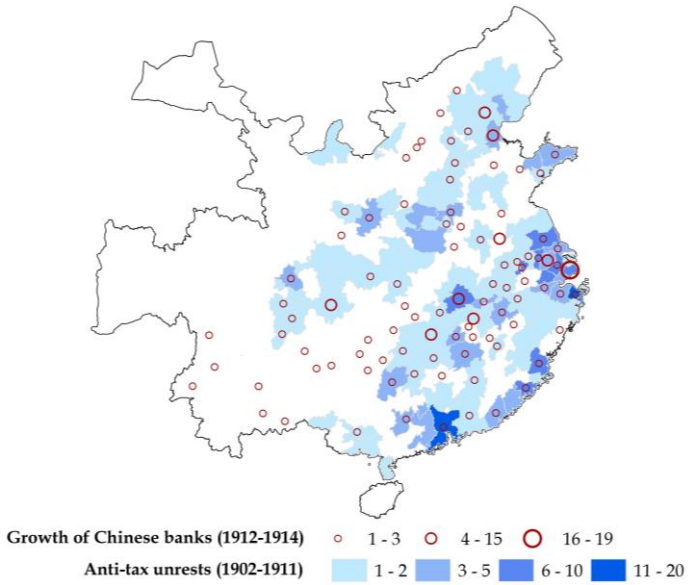
Panel A. The collected amount of domestic and foreign debts



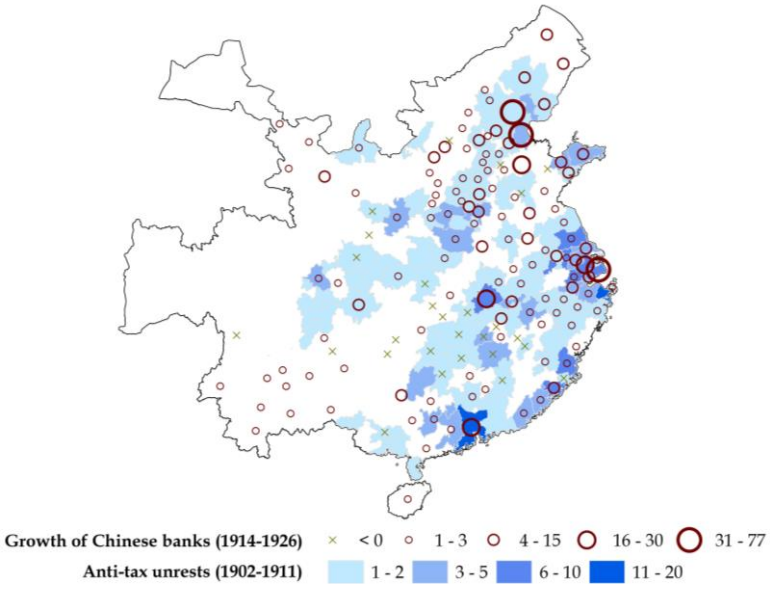
Panel B. The percentage share of domestic and foreign debts

Figure 1: Domestic and foreign debts (1902-1926)

Notes: The figures depict the collected amount (in million Yuan) and percentage share of domestic and foreign debts in China from 1902 to 1926. Domestic debts refer to Chinese government bonds issued by the central government and 18 provincial governments. Foreign debts refer to debts borrowed by Chinese governments from foreign banks and foreign governments. Data for foreign debts are from Xu (1962), and the data for domestic debts are from the Survey Department of Southern Manchuria Railway Company (1930), Qian (1984), and Ling (1928).



Panel A. Anti-tax unrests and the growth of banks before 1914



Panel B. Anti-tax unrests and the growth of banks after 1914

Figure 2. Distributions of anti-tax unrests and growth modern banks

Notes: The two figures depict the distribution of anti-tax unrests and the growth of modern banks. Anti-tax unrests refer to the total number of unrests involving tax resistance that occurred between 1902 and 1911 in each prefecture. Growth of modern banks refers to the difference in the number of banks between 1914 and 1912 (Panel A), and between 1926 and 1914 (Panel B). The data are at the prefectural level. The map convers 298 prefectures from 18 provinces in China proper.

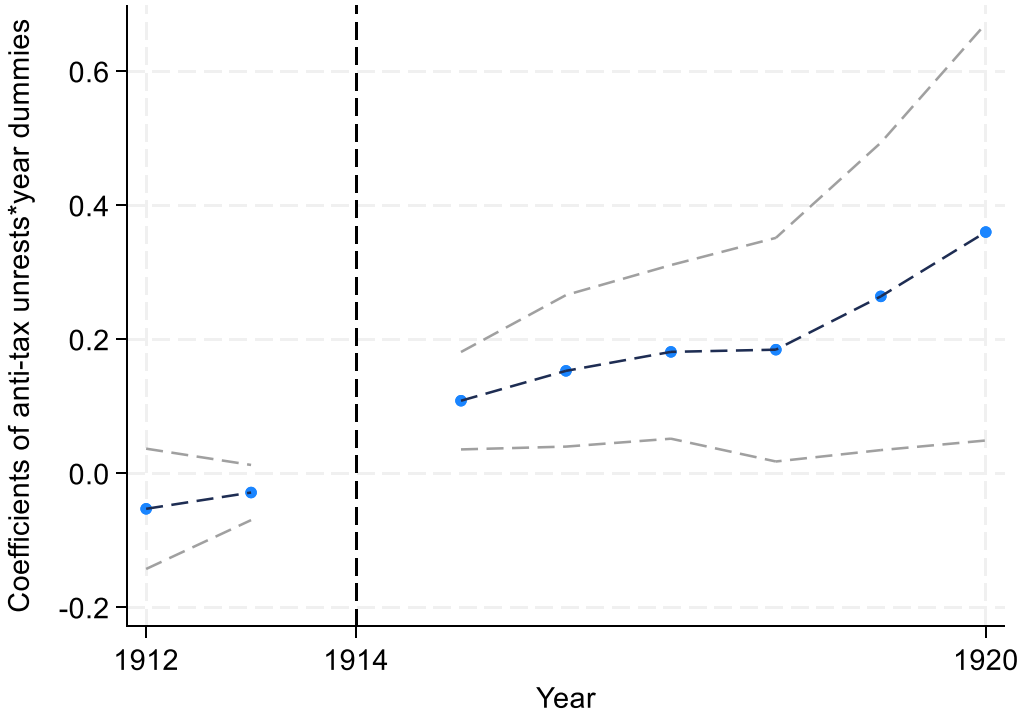


Figure 3. Parallel trends: The effect of patriotism on modern banks

Notes: This figure shows the pre- and post-1914 trend in the effect of anti-tax unrests on the number of modern Chinese banks. The coefficients (with 95% confidence intervals) are obtained from regressing the number of banks on the interaction terms between the anti-tax unrests and the year dummies between 1912 and 1920, conditional on the prefectural and year fixed effects and the interactive effects between the year dummies and the baseline prefectural factors (logarithm of prefectural population in 1910, the logarithm of prefectural land area, the logarithm of the prefecture's distance to the coast, the logarithm of the river length within each prefecture, the logarithm of the prefectural altitude, the ruggedness of the terrain, and the logarithm of the prefecture's distance to capital (Beijing)). The year 1914 is set to be the reference year.

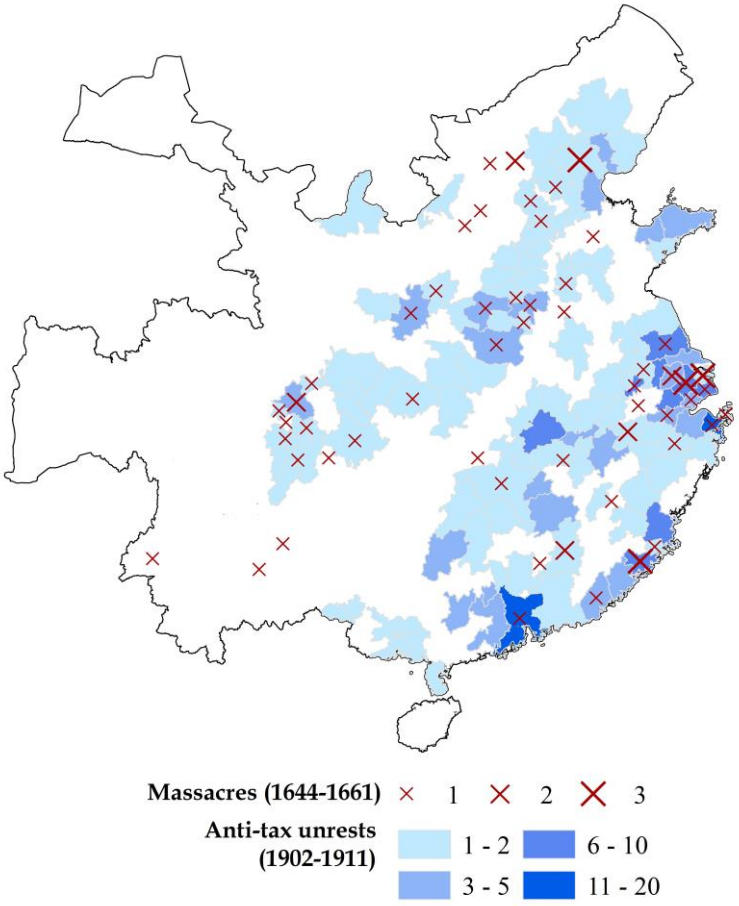
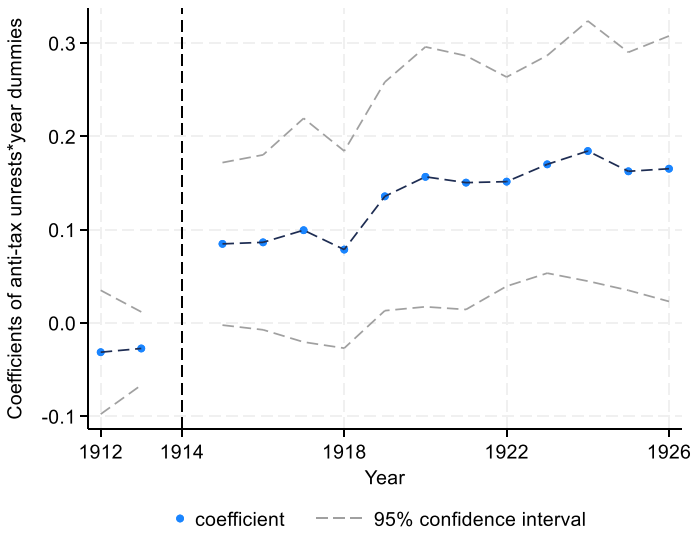
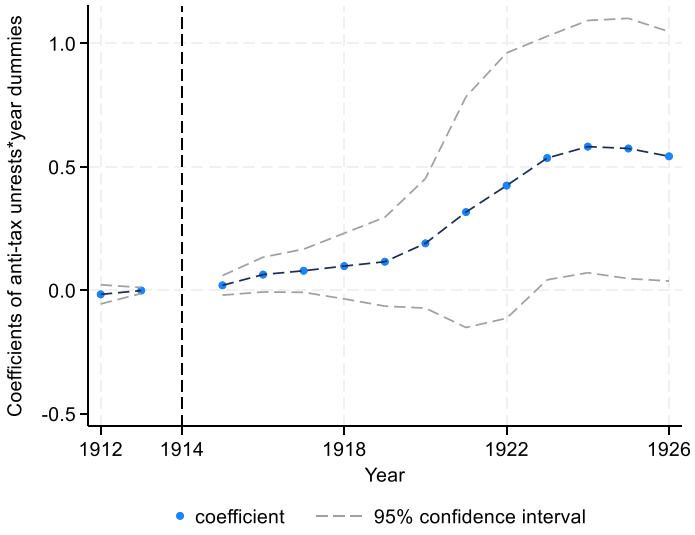


Figure 4. Distributions of anti-tax unrests and historical massacres

Notes: This figure depicts the spatial distribution of anti-tax unrests and the historical massacre taking place from 1644 to 1661. The data are at the prefectural level, covering 298 prefectures from 18 provinces in China proper.



Panel A. Official banks



Panel B. Private banks

Figure 5. The effect of patriotism on official and private banks

Notes: The figures show the dynamic effects of anti-tax unrests on the number of official banks (panel A) and private banks (panel B). The coefficients (with 95% confidence intervals) are obtained from regressing the number of official(private) banks on the interaction terms between the anti-tax unrests and the year dummies between 1912 and 1926, conditional on the prefectural and year fixed effects and the interactive effects between the year dummies and the baseline prefectural factors (logarithm of prefectural population in 1910, the logarithm of prefectural land area, the logarithm of the prefecture's distance to the coast, the logarithm of the river length within each prefecture, the logarithm of the prefectural altitude, the ruggedness of the terrain, and the logarithm of the prefecture's distance to capital (Beijing)). The year 1914 is set to be the reference year.

Table 1. Summary statistics

	Obs.	Mean	S.D.	Min	Max
A. Prefecture level variables					
Anti-tax unrests	286	1.056	2.008	0	19
Cadets in Baoding Academy after 1912	286	21.612	45.610	0	387
Cadets in Baoding Academy diff. (After-Before 1912)	286	13.608	28.394	-15	239
Political associations (1912-1926)	286	0.738	5.156	0	77
Social associations (1912-1926)	286	0.566	3.180	0	35
Chinese banks	4,290	1.915	5.538	0	101
Official banks	4,290	1.171	2.160	0	19
Private banks	4,290	0.692	3.585	0	78
- *Baseline controls*					
Population in 1910 (in 100,000 people)	286	13.995	13.397	0.330	75.770
Land area (in 1,000 sq.km.)	286	14.663	14.205	0.262	131.190
Distance to the coast (km)	286	500.337	382.237	0.381	2181.953
River length (km)	286	3.378	5.790	0.024	38.037
Altitude (in 100 m)	286	7.484	8.102	0.040	42.778
Ruggedness	286	1.004	0.006	1	1.040
Distance to Beijing (km)	286	1,230.234	588.886	99.001	2,498.833
- *Instrumental variable*					
Massacres	286	0.227	0.524	0	3
- *Additional controls (lagged)*					
Modern industrial firms	4,290	0.379	2.141	0	51
Treaty ports	4,290	0.157	0.449	0	4
Custom duties (in million yuan)	4,290	0.116	0.942	0	24.360
Civil examination quota	286	103.164	76.009	0	354
Telegraph stations	4,290	1.999	1.754	0	11
Railway stations	4,290	0.624	1.442	0	8
Postal offices	4,290	4.701	2.847	0	16
Civil wars	4,290	0.035	0.250	0	5
Natural disasters	4,290	0.167	0.373	0	1
Symbolic Xinhai alignment	286	0.181	0.244	0	1
- *Placebo variables*					
Land tax per capita in 1820	286	1.082	0.102	1.000	1.959
Commercial tax bureaus	286	2.654	3.482	0	20
Anti-foreigner unrests	286	0.381	0.789	0	5
Boxer Rebellion	286	0.087	0.283	0	1
Boxer or anti-foreigner unrests	286	0.318	0.467	0	1
Anti-gentry unrests	286	0.472	1.337	0	10
Banditry	286	0.182	0.606	0	5
Peasant riots	286	0.874	2.135	0	19
B. Province level variables					
Anti-tax unrests	17	15.176	12.635	0	41
Collected value (in million yuan)	255	0.544	1.751	0	17.750
Collected value for economic develop. (in million yuan)	255	0.226	1.095	0	14.968
Collected value for military funding (in million yuan)	255	0.276	1.334	0	17.750
Collected value for disaster relief (in million yuan)	255	0.047	0.444	0	6.300
Target value (in million yuan)	255	0.879	2.334	0	18.250
Target value for economic develop. (in million yuan)	255	0.382	1.545	0	15.000
Target value for military funding (in million yuan)	255	0.425	1.704	0	18.250
Target value for disaster relief (in million yuan)	255	0.088	0.650	0	7
C. County level variables					
Chinese banks	22,545	0.364	2.330	0	99
Anti-tax unrests	1,503	0.199	0.631	0	8
Massacres	1,503	0.043	0.212	0	3
D. Bank level variables					
Exposure to anti-tax unrest	114	0.223	0.685	0	6
ROA (in %)	114	3.003	1.903	-0.592	9.861
Bond to asset ratio (in %)	114	8.446	4.908	0.272	27.594
Total assets (in million yuan)	114	43.771	85.101	1.844	505.815
Leverage ratio (in %)	114	65.893	12.295	31.171	92.914
Cash ratio (in %)	114	7.293	4.611	1.128	23.565

Table 2. Anti-tax unrests and civic engagement

This table examines the effects of anti-tax unrests on civic engagement activities. Panel A focuses on military participation. The dependent variable in column 1 and 2 is the number of cadets at the Baoding Military Academy between 1912 and 1923. The prefectural distribution of cadets is identified based on the students' birthplace. In column 3, the dependent variable is the difference of cadets post- and pre-1912. Panel B focuses on political and social participation. The dependent variable in column 1 and 2 is the number of associations promoting political ideologies and the dependent variable in column 3 and 4 is the number of associations aimed at social welfare, such as charities and support groups for vulnerable demographics like women and youth. The main explanatory variable for both panels is the number of anti-tax unrests in each prefecture between 1902 and 1911. Controls variables include the logarithm of prefectural population in 1910, the logarithm of prefectural land area, the logarithm of the prefecture's distance to the coast, the logarithm of the river length within each prefecture, the logarithm of the prefectural altitude, the ruggedness of the terrain, and the logarithm of the prefecture's distance to capital (Beijing). Prefecture and year fixed effects are included. The analysis encompasses 286 prefectures from 18 provinces within China Proper. Standard errors are clustered at the prefecture level and are reported in parentheses. *, **, and *** indicate significance at 10%, 5% and 1%, respectively.

Panel A. Military participation

	Number of cadets at the Baoding Military Academy		
	After 1912		Diff. (After-Before 1912)
	1	2	3
Anti-tax unrests	7.336***	4.108**	3.552***
	(1.678)	(1.673)	(1.196)
Population in 1910		10.307***	7.375***
		(2.592)	(1.695)
Land area		2.531	0.680
		(2.484)	(1.338)
Distance to coast		1.750	0.857
		(2.432)	(1.877)
River length		-0.387	-1.172
		(1.969)	(1.238)
Altitude		-4.635	-0.382
		(3.738)	(2.213)
Ruggedness		647.552*	163.927
		(360.824)	(167.839)
Distance to Beijing		-17.816**	-6.291*
		(7.346)	(3.245)
R-squared	0.101	0.259	0.218
Observations	286	286	286
Mean of dependent variable	21.612	21.612	13.608

Panel B. Political and social participation

	Num# of political associations		Num# of social associations	
	1	2	3	4
Anti-tax unrests	1.053**	1.035***	0.693***	0.681**
	(0.406)	(0.394)	(0.250)	(0.267)
Controls		Yes		Yes
R-squared	0.165	0.162	0.188	0.188
Observations	286	286	286	286
Mean of dependent variable	0.738	0.738	0.566	0.566

Table 3. Anti-tax unrests and government bond subscription

This table examines the effects of anti-tax unrests on government bond issuance. The dependent variable, *collected value (in million yuan)*, refers to the amount of fund raised by provincial government through bond issuance in each year. The main explanatory variable, *Anti-tax unrests × Post1914*, is the number of anti-tax unrests in each province between 1902 and 1911 interacting with the post-1914 dummy. Other control variables, *target value*, *interest rate*, *collateral*, and *maturity*, denote the total target amount (in million yuan), bond interest rate, whether the bonds are collateralized, and years of maturity, respectively. The latter three variables are average of all bonds issued in a province in a given year, weighted by target value. Column 1 includes all bonds issued by provincial governments. Column 2-4 use subsamples of different types of bonds based on their intended purposes - economic development, military funding, and disaster relief. The regressions include baseline controls identical to column 2 of Table 2, except at the provincial level. Province and year fixed effects are included. The analysis encompasses 17 provinces, covering the period from 1912 to 1926. Standard errors are clustered at the province level and are reported in parentheses. *, **, and *** indicate significance at 10%, 5% and 1%, respectively.

	Collected value (in million yuan)			
	All bonds	Bonds for economic development	Bonds for military funding	Bonds for disaster relief
	1	2	3	4
Anti-tax unrests × Post1914	0.029**	0.031***	-0.004	-0.000
	(0.011)	(0.007)	(0.008)	(0.000)
Target value (in million yuan)	0.678***	0.647***	0.718***	0.320***
	(0.131)	(0.191)	(0.191)	(0.061)
Interest rate (weighted avg)	5.161	1.927	8.102*	-30.177***
	(4.348)	(7.339)	(4.326)	(3.608)
Collateral (weighted avg)	-0.569*	-0.857*	-0.486*	2.999***
	(0.288)	(0.478)	(0.230)	(0.424)
Maturity (weighted avg)	-0.049	-0.015	-0.083	0.251
	(0.041)	(0.075)	(0.062)	(0.162)
Controls × Post1914	Yes	Yes	Yes	Yes
Province and Year FE	Yes	Yes	Yes	Yes
R-squared	0.766	0.730	0.783	0.996
Observations	255	255	255	255
Mean of dependent variable	0.544	0.226	0.276	0.047

Table 4. Anti-tax unrests and modern banking developments

This table explores the relationship between patriotism and the development of modern banking in China. The dependent variable is the number of modern Chinese banks, including both headquarters and branches, in each prefecture for each year. The key explanatory variable is structured as treat × post, where "treat" is the number of anti-tax unrests occurring in each prefecture between 1902 and 1911, and 'post1914' is a dummy variable that equals to one for years after 1914 and zero for years up to and including 1914. Controls variables include the interaction of post dummy and the logarithm of prefectural population in 1910, the logarithm of prefectural land area, the logarithm of the prefecture's distance to the coast, the logarithm of the river length within each prefecture, the logarithm of the prefectural altitude, the ruggedness of the terrain, and the logarithm of the prefecture's distance to capital (Beijing). Prefecture and year fixed effects are included. The analysis encompasses 286 prefectures from 18 provinces within China Proper, covering the period from 1912, the establishment year of Republican China, to 1926, just before the Northern Expedition. Standard errors are clustered at the prefecture level and are reported in parentheses. *, **, and *** indicate significance at 10%, 5% and 1%, respectively.

	Number of banks	
	1	2
Anti-tax unrests × Post1914	0.686***	0.479***
	(0.222)	(0.178)
Population in 1910 × Post1914		-0.043
		(0.262)
Land area × Post1914		0.437**
		(0.214)
Distance to coast × Post1914		-0.151
		(0.130)
River length × Post1914		0.531*
		(0.287)
Altitude × Post1914		-0.737
		(0.448)
Ruggedness × Post1914		0.684*
		(0.355)
Distance to Beijing × Post1914		-1.258**
		(0.497)
Prefecture and Year FE	Yes	Yes
R-squared	0.746	0.756
Observations	4,290	4,290
Mean of dependent variable	1.915	1.915

Table 5. Instrumental variable (IV)

This table examines the effects of anti-tax unrests on modern banks using the IV-2SLS approach. The dependent variable is the number of modern Chinese bank in each prefecture for each year. The explanatory variable, *Anti-tax unrests × Post1914*, is instrumented by *Massacres × Post1914*, where massacres refer to the number of massacres that each prefecture had experienced during 1644 and 1661. Panel A reports the 2SLS estimation results. Column 1 reports the result without any controls. Column 2 reports the result with baseline controls identical to column 2 of Table 2. Panel B reports the first stage regression accordingly. Prefecture and year fixed effects are included. The analysis encompasses 286 prefectures, covering the period from 1912 to 1926. Standard errors are clustered at the prefecture level and are reported in parentheses. *, **, and *** indicate significance at 10%, 5% and 1%, respectively.

Panel A. 2SLS	Number of banks	
	1	2
Anti-tax unrests × Post1914	1.218***	1.180**
	(0.430)	(0.491)
Controls × Post1914		Yes
Prefecture and Year FE	Yes	Yes
Kleibergen Paap F-statistic	21.607	14.287
Observations	4,290	4,290
Panel B. First Stage	Anti-tax unrests× Post1914	
	1	2
Massacres × Post1914	1.398***	0.997***
	(0.301)	(0.264)
Controls × Post1914		Yes
Prefecture and Year FE	Yes	Yes
R-squared	0.823	0.856
Observations	4,290	4,290

Table 6. Additional controls

This table examines the effects of anti-tax unrests on modern banks with additional controls. The dependent variable (number of banks), main explanatory variable (*Anti-tax unrests × Post1914*), and controls variables are identical to Table 4. Additional controls include: the logarithm of the number of newly established industrial firms (column 1), the number of treaty ports (column 2), the logarithm of the custom duty income in these treaty ports (column 3), the interaction term between log civil examination quota and post-1914 dummy (column 4), the number of telegraph stations, rail way stations and postal offices (column 5), the occurrence of local civil wars and the occurrence of natural disasters (flood and drought) (column 6), and the ratio of counties that symbolically aligned during Xinhai Revolution (column 7). All time-variant additional controls are lagged for one year. In column 8, all the above-mentioned controls are included simultaneously. Column 9 employes an DiD-IV approach where the *Anti-tax unrests × Post1914*, is instrumented by *Massacres × Post1914*. Prefecture and year fixed effects are included. The analysis encompasses 286 prefectures, covering the period from 1912 to 1926. Standard errors are clustered at the prefecture level and are reported in parentheses. *, **, and *** indicate significance at 10%, 5% and 1%, respectively.

	Number of banks								
	1	2	3	4	5	6	7	8	9 - IV
Anti-tax unrests × Post1914	0.455***	0.479***	0.480***	0.457***	0.476***	0.474***	0.466***	0.413***	0.991**
	(0.167)	(0.177)	(0.178)	(0.168)	(0.177)	(0.178)	(0.165)	(0.145)	(0.474)
Industrial firms (log, lagged)	1.468**							1.490**	1.419**
	(0.636)							(0.627)	(0.623)
Treaty ports (lagged)		1.759**						1.840***	1.816***
		(0.714)						(0.648)	(0.629)
Custom duties (log, lagged)			0.357					0.318	0.330
			(0.248)					(0.230)	(0.231)
Quota (log) × Post1914				0.359				0.382	0.174
				(0.239)				(0.239)	(0.244)
Telegraph stations (lagged)					-0.117			-0.099	-0.091
					(0.215)			(0.208)	(0.207)
Railway stations (lagged)					0.188			0.079	-0.031
					(0.966)			(0.936)	(0.916)
Postal offices (lagged)					-0.036			-0.046	0.001
					(0.165)			(0.155)	(0.173)
Civil wars (lagged)						0.719		0.761	0.725
						(0.606)		(0.606)	(0.618)
Natural disasters (lagged)						0.048		0.047	0.024
						(0.105)		(0.100)	(0.098)
Symbolic Xinhai alignment × Post1914							0.747	0.605	-0.023
							(1.116)	(1.065)	(1.052)
Controls × Post	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Prefecture and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.760	0.757	0.757	0.756	0.756	0.757	0.756	0.763	
Kleibergen Paap F-statistic									12.756
Observations	4,290	4,290	4,290	4,290	4,290	4,290	4,290	4,290	4,290

Table 7. County level evidence

This table examines the effects of anti-tax unrests on modern banks at the county level. The dependent variable is the number of modern Chinese bank in each county for each year. The explanatory variable, *Anti-tax unrests × post1914* is the number of anti-tax unrests in each county between 1902 and 1911 interacting with the post-1914 dummy. Column 1-3 report the regression results with OLS. Column 4-6 report results using IV-2SLS approach, where the *Anti-tax unrests × Post1914* is instrumented by *Massacres × Post1914*. The massacres refer to the number of massacres that each county had experienced during 1644 and 1661. Column 1 and 4 reports the result without any controls. Column 2 and 5 reports the result with baseline controls identical to column 2 of Table 4. Columns 3 and 6 further include additional controls identical to column 7 of Table 6. County and year fixed effects are included. The analysis encompasses 1,503 counties, covering the period from 1912 to 1926. Standard errors are clustered at the county level and are reported in parentheses. *, **, and *** indicate significance at 10%, 5% and 1%, respectively.

	Number of banks					
	OLS			IV-2SLS		
	1	2	3	4	5	6
Anti-tax unrests × Post1914	0.493**	0.429**	0.396**	1.778*	1.864*	1.879*
	(0.222)	(0.202)	(0.188)	(0.912)	(0.987)	(1.039)
Controls × Post1914		Yes	Yes		Yes	Yes
Additional controls			Yes			Yes
Year and County FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.742	0.743	0.745			
Kleibergen Paap F-statistic				10.365	8.801	7.809
Observations	22,545	22,545	22,545	22,545	22,545	22,545
Mean of dependent variable	0.364	0.364	0.364	0.364	0.364	0.364

Table 8. Falsification tests

This table reports the results of falsification tests. The dependent variable is the number of modern Chinese banks in each prefecture for each year. The placebo explanatory variable is structured as treat × post, where *Post1914* is a dummy variable that equals to one for years after 1914 and zero for years up to and including 1914. The placebo "treat" variables fall into three categories. In column 1-2, tax burden is measured by the logarithm of per capital land tax in 1820 (column 1) and the number of commercial tax bureaus (column 2). Column 2-4 examine xenophobia which is proxied by three measures: a dummy that indicate the occurrence of Boxer Rebellion (column 3), the number of anti-foreigner unrests between 1902 and 1911 (column 4), and a dummy that indicates the occurrence of either boxer movement or anti-foreigner unrests (column 5). Column 6-8 examine general social disorder which is proxied by three measures: the number of anti-gentry unrests between 1902 and 1911 (column 6), the number of banditry activities between 1902 and 1911 (column 7), and the number of peasant unrests between 1902 and 1911 (column 8). Detailed definitions of the variables are outlined in section 5.4. Controls variables are identical to those in column 2 of Table 4. Prefecture and year fixed effects are included. The analysis encompasses 286 prefectures from 18 provinces within China-proper, covering the period from 1912 to 1926. Standard errors are clustered at the prefecture level and are reported in parentheses. *, **, and *** indicate significance at 10%, 5% and 1%, respectively.

	Number of banks							
	Tax burden		Xenophobia			Social disorder		
	1	2	3	4	5	6	7	8
Land tax per capita in 1820 (log) × Post1914	1.908							
	(2.917)							
Commercial tax bureaus × Post1914		0.223*						
		(0.114)						
Boxer × Post1914			1.153					
			(0.964)					
Anti-foreigner unrests × Post1914				0.441				
				(0.324)				
Boxer or anti-foreigner unrests × Post1914					0.355			
					(0.453)			
Anti-gentry unrests × Post1914						0.834		
						(0.520)		
Banditry× Post1914							1.966	
							(1.609)	
Peasant unrests × Post1914								0.390
								(0.332)
Controls × Post1914	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Prefecture and Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.752	0.755	0.753	0.753	0.752	0.757	0.759	0.755
Observations	4,290	4,290	4,290	4,290	4,290	4,290	4,290	4,290

Table 9. The effects of anti-tax unrests on bank performance

This table examines the effects of anti-tax unrests on bank performance. Based on the financial statements of 19 major Chinese modern banks from 1922 to 1926, we construct bank-year level financial measures. The dependent variable in column 1 and 2, *Bonds/assets*, refer to the amount of government bonds held by the bank scaled by total assets (× 100). The amount of government bonds holdings in the bank is the sum of 30% of banknotes and 75% of marketable securities. The dependent variable in column 3 is the bond holding difference between the current and previous year, scaled by last year's total assets. The dependent variable in column 4 and 5 is ROA, defined as the net profit to total assets ratio (× 100). The dependent variable in column 6 is the profit difference between the current and previous year, scaled by last year's total assets. The main explanatory variables, *Additional exposure to unrest*, is constructed by calculating the weighted sum of anti-tax unrests in the prefectures where a bank has established new branches within a specific year, with the weighting based on the number of new branches in each prefecture.[53] This weighted sum of unrest is then scaled by the total number of branches in the bank. Columns 2-3 and 5-6 control for bank level covariates, including the bank's total assets (log), cash-to-asset ratio (v100), and leverage or debt-to-asset ratio (× 100). The explanatory variables are all lagged for one year. Bank and year fixed effects are included. Standard errors are clustered at the bank level and are reported in parentheses. *, **, and *** indicate significance at 10%, 5% and 1%, respectively.

	Government bond holding			Profitability		
	Bonds/assets		(Growth of bonds)/assets	ROA		(Growth of profits)/assets
	1	2	3	4	5	6
Additional exposure to unrest (lagged)	0.566**	0.768***	1.402***	0.307***	0.268***	0.443***
	(0.232)	(0.265)	(0.318)	(0.060)	(0.064)	(0.094)
Assets (log, lagged)		0.801	-4.088		0.906	-0.984
		(2.533)	(3.992)		(0.626)	(1.139)
Leverage (lagged)		0.091	0.186		-0.028	0.048*
		(0.067)	(0.114)		(0.018)	(0.026)
Cash-to-asset (lagged)		-0.023	0.182		0.042	0.157***
		(0.186)	(0.194)		(0.046)	(0.052)
R-squared	0.760	0.767	0.082	0.836	0.837	0.171
Observations	95	95	95	95	95	95
Mean of dependent variable	9.152	9.152	1.690	2.021	2.021	0.019

[53] For instance, consider a bank that established five new branches within the year—two in Prefecture A and three in Prefecture B. The bank's new exposure to patriotic sentiment, as measured by anti-tax unrest, is calculated as the sum of the unrest in Prefecture A multiplied by two and the unrest in Prefecture B multiplied by three.

Table 10. The effects of anti-tax unrests on official and private banks

This table examines the effects of anti-tax unrests on official banks (Panel A) and private banks (Panel B). Both panels use the same regression models, differing only in their dependent variables. In Panel A, the dependent variable is the number of official banks, which were initiated by governmental bodies. In Panel B, the dependent variable is the number of private banks, which were fully owned by private businessmen. The explanatory variable, *Anti-tax unrests* × *Post1914*, represents the number of anti-tax unrests in each county from 1902 to 1911, interacted with a post-1914 dummy. Columns 1-3 report the regression results using OLS, while Columns 4-6 report results using the IV-2SLS approach, where *Anti-tax unrests* × *Post1914* is instrumented by *Massacres* × *Post1914*. Here, massacres refer to the number each county experienced between 1644 and 1661. Control variables are added progressively across columns: baseline controls match those in Column 2 of Table 4, with additional controls as specified in Column 8 of Table 6. Prefecture and year fixed effects are included. The analysis encompasses 286 prefectures, covering the period from 1912 to 1926. Standard errors are clustered at the prefecture level and are reported in parentheses. *, **, and *** indicate significance at 10%, 5% and 1%, respectively.

Panel A. Official banks

	Number of official banks					
	OLS			IV-2SLS		
	1	2	3	4	5	6
Anti-tax unrests × Post1914	0.215***	0.155***	0.159***	0.365***	0.342**	0.337**
	(0.044)	(0.053)	(0.053)	(0.129)	(0.158)	(0.161)
Controls × Post1914		Yes	Yes		Yes	Yes
Additional controls			Yes			Yes
Year and Prefecture FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.822	0.837	0.843			
Kleibergen Paap F-statistic				21.607	14.287	12.756
Observations	4,290	4,290	4,290	4,290	4,290	4,290
Mean of dependent variable	1.171	1.171	1.171	1.171	1.171	1.171

Panel B. Private banks

	Number of private banks					
	OLS			IV-2SLS		
	1	2	3	4	5	6
Anti-tax unrests × Post1914	0.435**	0.301*	0.235*	0.831**	0.839**	0.676*
	(0.201)	(0.158)	(0.123)	(0.361)	(0.394)	(0.352)
Controls × Post1914		Yes	Yes		Yes	Yes
Additional controls			Yes			Yes
Year and Prefecture FE	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.624	0.632	0.641			
Kleibergen Paap F-statistic				21.607	14.287	12.756
Observations	4,290	4,290	4,290	4,290	4,290	4,290
Mean of dependent variable	0.692	0.692	0.692	0.692	0.692	0.692

Appendix A. Additional results

A.1. *Anti-tax unrests and anarchism*

Anarchism emerged in China during the late Qing period, coinciding with a time of significant civilian uprisings. This rise was part of a larger wave of intellectual ferment and political upheaval. As Chinese intellectuals and students sought solutions to China's decline and subjugation by foreign powers, some turned to anarchism, which they encountered primarily through studies abroad. Notably, Chinese students in Japan and later in France during the first decade of the 1900s played a crucial role in bringing anarchist ideas back to China.

The formation of the Spring Wind Society (*Chunfeng Hui*) in Tokyo around 1907 marked one of the earliest organized efforts by Chinese students to articulate and disseminate anarchist ideologies. Despite these early developments, anarchism did not gain significant momentum in China until 1919 when the May Fourth Movement outbroke.

To address concerns that the anti-tax protesters during the late Qing might have adopted anarchism, thus diminishing their interest in participating in state-building during the early Republican era, we compiled data on anarchist associations in each prefecture from 1912 to 1926 based on Zhang and Li (1999). These associations openly declared anarchism as their objective. The data supports anecdotal evidence that anarchism was relatively minor before 1919. Among the 32 anarchist associations documented, only 13 were founded between 1912 and 1919, predominantly located in Guangzhou and Shanghai. Post-1919, anarchist ideologies began to spread more widely across China, although they remained less influential compared to other political movements. Empirically, we regress the number of anarchist associations on the number of anti-tax unrests. Given the geographical sparsity of anarchist associations, which introduces potential zero inflation in the dependent variable, we employ both OLS and Poisson regression models.

The results, presented in Appendix Table B1, indicate a weak or nonexistent correlation between anti-tax unrests and the presence of anarchist associations. This empirical analysis, combined with the aforementioned stylized facts, suggests that it is unlikely anti-tax unrests are indicative of anarchism. If any such association existed, it would likely attenuate the impact of anti-tax unrests on state formation and consequently, on banking development.

Appendix B. Figures and Tables

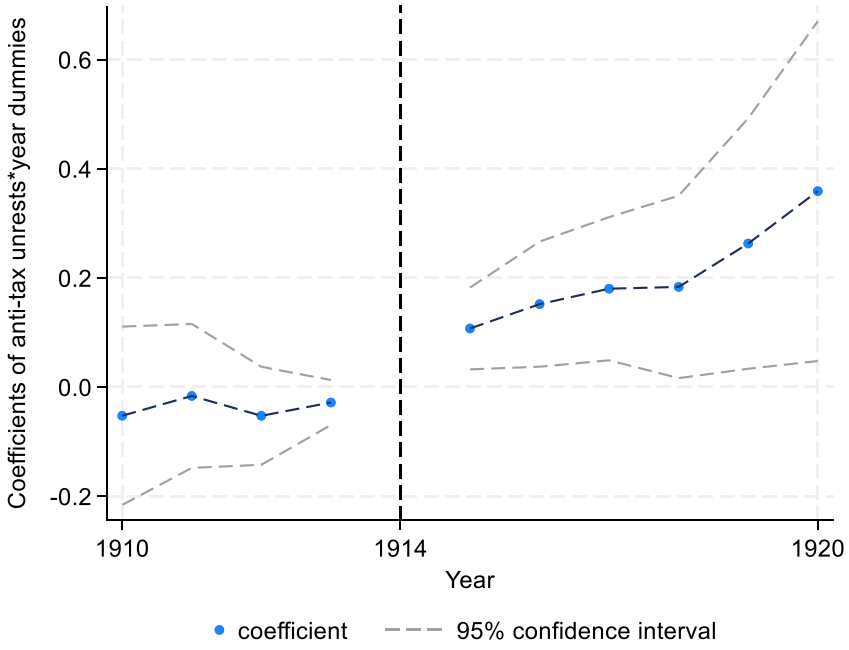


Figure B1. Extended parallel trends

Notes: This figure shows an extended version the pre- and post-1914 trend in the effect of anti-tax unrests on the number of Chinese modern banks. The time span is prolonged to be 1910 to 1920. The coefficients (with 95% confidence intervals) are obtained from regressing the number of banks on the interaction terms between the anti-tax unrests and the year dummies, conditional on the prefectural and year fixed effects and the interactive effects between the year dummies and the baseline prefectural factors. The year 1914 is set to be the reference year.

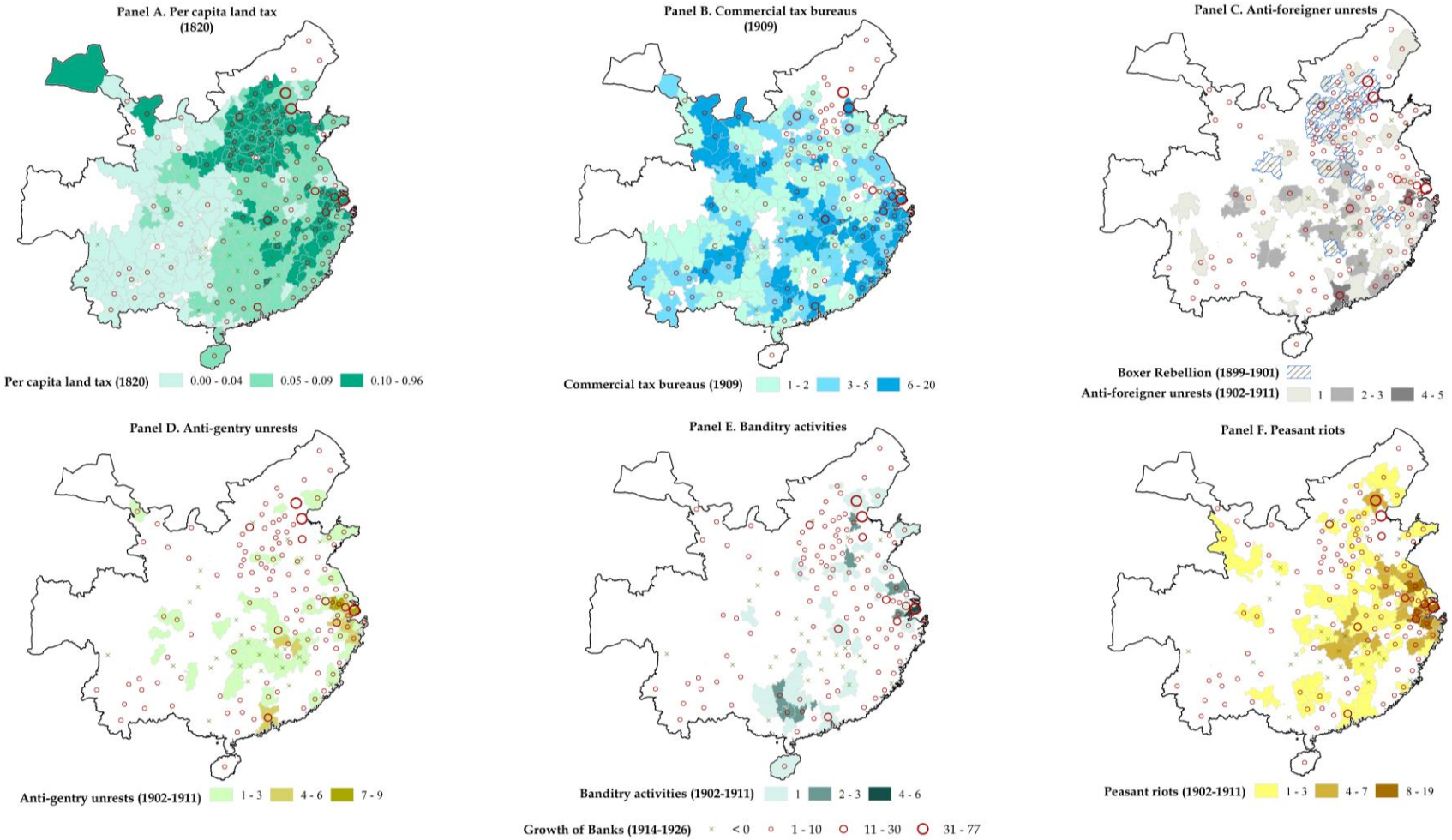


Figure B2. The distribution of placebo "treat" variables

Notes: These figures depict the distribution of the growth of modern banks and of the placebo "treat" variables as discussed in section 5.4. The growth of modern banks refers to the difference of number of banks between 1926 and 1914. The placebo "treat" variables include: the level of land tax per capita in 1820 (Panel A), the number of commercial tax bureaus (Panel B), the number of anti-foreigner unrests between 1902 and 1911 and the occurrence of Boxer Rebellion (Panel C), the number of anti-gentry unrests between 1902 and 1911 (Panel D), the number of banditry activities between 1902 and 1911 (Panel E), and the number of peasant riots between 1902 and 1911 (Panel F). Detail definition of the variables and data sources are discussed in section 5.4.

Table B1. Anti-tax unrests and anarchism

This table examines whether anti-tax unrests were associated with anarchism. The dependent variable is the number of anarchistic associations established in each prefecture between 1912 and 1926. The explanatory variable is the number of anti-tax unrests in each prefecture between 1902 and 1911. Controls variables include the logarithm of prefectural population in 1910, the logarithm of prefectural land area, the logarithm of the prefecture's distance to the coast, the logarithm of the river length within each prefecture, the logarithm of the prefectural altitude, the ruggedness of the terrain, and the logarithm of the prefecture's distance to capital (Beijing). The analysis encompasses 286 prefectures from 18 provinces within China-proper. Standard errors are robust and are reported in parentheses. *, **, and *** indicate significance at 10%, 5% and 1%, respectively.

	Num# of anarchistic associations		
	1	2	3
	OLS	OLS	Poisson
Anti-tax unrest	0.184*	0.189*	0.157
	(0.097)	(0.110)	(0.097)
Controls		Yes	Yes
Adjusted R-squared	0.221	0.214	
Observations	286	286	286
Mean of dependent variable	0.101	0.101	0.101

Table B2. Government bond subscription: alternative investment opportunities

This table examines the effects of anti-tax unrests on government bond issuance, with additional measure of alternative investment opportunity being controlled. The dependent variable, *collected value (in million yuan)*, refers to the amount of fund raised by provincial government through bond issuance in each year. The main explanatory variable, *Anti-tax unrests × Post1914*, is the number of anti-tax unrests in each province between 1902 and 1911 interacting with the post-1914 dummy. *Local loan rate* is the average of interest rate of local loans within a province in a given year. Column 1 includes all bonds issued by provincial governments. Column 2-4 use subsamples of different types of bonds based on their intended purposes - economic development, military funding, and disaster relief. The regressions include baseline controls identical to column 2 of Table 2, except at the provincial level. They also include bonds controls, i.e. target value, interest rate, collateral, and maturity, identical of Table 3. Province and year fixed effects are included. The analysis encompasses 17 provinces, covering the period from 1912 to 1926. Due to missing observations in remote provinces in certain years, the number of observations decreased as compared to Table 3. Standard errors are clustered at the province level and are reported in parentheses. *, **, and *** indicate significance at 10%, 5% and 1%, respectively.

	Collected value (in million yuan)			
	All bonds	Bonds for economic development	Bonds for military funding	Bonds for disaster relief
	1	2	3	4
Anti-tax unrests × Post1914	0.042**	0.036**	-0.011	-0.000
	(0.017)	(0.017)	(0.015)	(0.000)
Local loan rate	0.000	0.005	-0.002	0.000
	(0.005)	(0.006)	(0.005)	(0.000)
Bond controls	Yes	Yes	Yes	Yes
Controls × Post1914	Yes	Yes	Yes	Yes
Province and Year FE	Yes	Yes	Yes	Yes
R-squared	0.861	0.785	0.922	0.997
Observations	162	162	162	162
Mean of dependent variable	0.543	0.226	0.276	0.047

Table B3. Anti-tax unrests, civic engagement, and banks

This table examines the effects of anti-tax unrests on banks while controlling for civic engagement activities. The dependent variable is the number of banks in each prefecture in each year. The main explanatory variable, *Anti-tax unrests × Post1914*, is the number of anti-tax unrests in each prefecture between 1902 and 1911 interacting with post-1914 dummy. Civic engagement prior to the 1914 WWI shock is measured by three variables: 1) the number of cadets at the Baoding Military Academy between 1912 and 1914, 2) the number of associations promoting political ideologies established between 1912 and 1914, and 3) the number of associations aimed at social welfare established between 1912 and 1914. Controls variables include the interaction between post-1914 dummy and the logarithm of prefectural population in 1910, the logarithm of prefectural land area, the logarithm of the prefecture's distance to the coast, the logarithm of the river length within each prefecture, the logarithm of the prefectural altitude, the ruggedness of the terrain, and the logarithm of the prefecture's distance to capital (Beijing). Prefecture and year fixed effects are included. The analysis encompasses 286 prefectures from 1912 to 1926. Standard errors are clustered at the prefecture level and are reported in parentheses. *, **, and *** indicate significance at 10%, 5% and 1%, respectively.

	Number of banks		
	1	2	3
Anti-tax unrests × Post1914	0.450**	0.008	0.146
	(0.199)	(0.125)	(0.137)
Cadets at the Baoding Military Academy (1912-1914) × Post1914	0.013		
	(0.024)		
Political associations (1912-1914) × Post1914		0.633***	
		(0.034)	
Social associations (1912-1914) × Post1914			1.738***
			(0.280)
Controls × Post1914	Yes	Yes	Yes
Prefecture and Year FE	Yes	Yes	Yes
R-squared	0.756	0.789	0.784
Observations	4,290	4,290	4,290
Mean of dependent variable	1.915	1.915	1.915

Table B4. Political opportunism and civic engagement

This table examines the effects of political opportunism on civic engagement activities. The political opportunism is measured by *Symbolic Xinhai alignment*—that is, within each prefecture, the ratio of counties that symbolically declared abandonment of the Qing court during the Xinhai Revolution. Panel A focuses on military participation. Panel B focuses on political and social participation. The definitions of dependent variables and model specifications follow Table 2. Prefecture and year fixed effects are included. The analysis encompasses 286 prefectures from 18 provinces within China Proper. Standard errors are clustered at the prefecture level and are reported in parentheses. *, **, and *** indicate significance at 10%, 5% and 1%, respectively.

Panel A. Military participation

	Number of cadets at the Baoding Military Academy			
	After 1912		Diff. (After-Before 1912)	
	1	2	3	4
Symbolic Xinhai alignment	-7.447	-12.171*	-3.409	-7.432
	(6.697)	(6.864)	(4.554)	(4.833)
Anti-tax unrests		4.330**		3.688***
		(1.727)		(1.244)
Controls	Yes	Yes	Yes	Yes
R-squared	0.235	0.260	0.169	0.219
Observations	286	286	286	286
Mean of dependent variable	0.738	0.738	0.566	0.566

Panel B. Political and social participation

	Num# of political associations		Num# of social associations	
	1	2	3	4
Symbolic Xinhai alignment	3.105	2.016	1.648	0.924
	(2.380)	(1.951)	(1.146)	(0.878)
Anti-tax unrests		0.999***		0.664**
		(0.371)		(0.261)
Controls		Yes		Yes
R-squared	0.053	0.167	0.057	0.190
Observations	286	286	286	286
Mean of dependent variable	0.738	0.738	0.566	0.566

Table B5. Political opportunism and government bond subscription

This table examines the effects of political opportunism on government bond issuance. The political opportunism is measured by *Symbolic Xinhai alignment*—that is, within each prefecture, the ratio of counties that symbolically declared abandonment of the Qing court during the Xinhai Revolution. Panel A focuses on Xinhai alignment alone, while Panel B includes both symbolic Xinhai alignment and anti-tax unrests. Definitions of the dependent variables and model specifications follow those in Table 3. Province and year fixed effects are included. The analysis encompasses 17 provinces, covering the period from 1912 to 1926. Standard errors are clustered at the province level and are reported in parentheses. *, **, and *** indicate significance at 10%, 5% and 1%, respectively.

Panel A. Political opportunism

	Collected value (in million yuan)			
	All bonds	Bonds for economic development	Bonds for military funding	Bonds for disaster relief
	1	2	3	4
Symbolic Xinhai alignment × Post1914	0.440	1.203*	-0.406	-0.009
	(0.976)	(0.641)	(0.511)	(0.029)
Bond controls	Yes	Yes	Yes	Yes
Controls × Post1914	Yes	Yes	Yes	Yes
Province and Year FE	Yes	Yes	Yes	Yes
R-squared	0.765	0.726	0.783	0.996
Observations	255	255	255	255
Mean of dependent variable	0.543	0.226	0.276	0.047

Panel B. Political opportunism and patriotism

	Collected value (in million yuan)			
	All bonds	Bonds for economic development	Bonds for military funding	Bonds for disaster relief
	1	2	3	4
Symbolic Xinhai alignment × Post1914	-0.114	0.676	-0.355	-0.005
	(0.772)	(0.410)	(0.528)	(0.024)
Anti-tax unrests × Post1914	0.029**	0.028***	-0.003	-0.000
	(0.011)	(0.007)	(0.008)	(0.000)
Bond controls	Yes	Yes	Yes	Yes
Controls × Post1914	Yes	Yes	Yes	Yes
Province and Year FE	Yes	Yes	Yes	Yes
R-squared	0.765	0.729	0.782	0.996
Observations	255	255	255	255
Mean of dependent variable	0.543	0.226	0.276	0.047

Table B6. Reverse causality: anti-tax unrests and modern banks between 1902 and 1911

This table addresses the issue of reverse causality by analyzing panel data on banks and anti-tax unrests between 1902 and 1911. Columns 1 and 2 examine whether modern banks would promote anti-tax unrests. The dependent variable is the number of anti-tax unrests, while the explanatory variable is the number of banks in each prefecture in each year, examined both in the current year (column 1) and with a one-year lag (column 2). Columns 3 and 4 examine whether anti-tax unrests would have an instant influence on the number of banks. The dependent variable is the number of banks, and the explanatory variable is the number of anti-tax unrests in each prefecture in each year, examined both in the current year (column 3) and with a one-year lag (column 4). The observation in column 4 shrank because the number of anti-tax unrests is not available for the year 1901. Prefecture and year fixed effects are controlled for. The analysis encompasses 286 prefectures from 18 provinces within China-proper. Standard errors are clustered at the prefecture level and are reported in parentheses. *, **, and *** indicate significance at 10%, 5% and 1%, respectively.

	Anti-tax unrests		Number of banks	
	1	2	3	4
Number of banks	0.018			
	(0.021)			
Number of banks (lagged)		-0.010		
		(0.024)		
Anti-tax unrests			0.035	
			(0.043)	
Anti-tax unrests (lagged)				-0.041
				(0.050)
Prefecture and Year FE	Yes	Yes	Yes	Yes
R-squared	0.170	0.170	0.618	0.653
Observations	2,860	2,860	2,860	2,574
Sample period	1902-1911	1902-1911	1902-1911	1903-1912

Table B7. Exclusion restriction: Reduced form regression

This table provides the reduced form regression. The dependent variable is the number of modern Chinese banks in each prefecture for each year. In column 1, we regress the number of banks directly on the instrument mental variable *Massacres* × *Post1914*, where massacres refer to the number of massacres that each prefecture experienced during 1644 and 1661. In column 2, we further include the explanatory variable of interest, *Anti-tax unrests* × *Post1914*, to provide a horse race estimation. The controls are identical to column 2 of Table 2. Prefecture and year fixed effects are included. The analysis encompasses 286 prefectures, covering the period from 1912 to 1926. Standard errors are clustered at the prefecture level and are reported in parentheses. *, **, and *** indicate significance at 10%, 5% and 1%, respectively.

	Number of banks	
	1	2
Massacres × Post1914	1.177**	0.760
	(0.529)	(0.483)
Anti-tax unrests × Post1914		0.419**
		(0.177)
Controls × Post1914	Yes	Yes
Prefecture and Year FE	Yes	Yes
R-squared	0.754	0.757
Observations	4,290	4,290

Table B8. Land tax, commercial tax, and anti-tax unrests

This table examines whether the level of tax could predict anti-tax unrests. In panel A, the dependent variable is the number of anti-tax unrests between 1902 and 1911 in each prefecture. The explanatory variable is 1) the logarithm of per capita land tax in 1820 in each prefecture (column 1) and 2) the number of commercial tax bureaus in each prefecture (column 2). In panel B, the dependent variable is number of modern Chinese banks in each prefecture for each year. The explanatory variables include both *Anti-tax unrests* and the measures of tax burden interacting with *Post1914* dummy. In both panels, controls variables include the logarithm of prefectural population in 1910, the logarithm of prefectural land area, the logarithm of the prefecture's distance to the coast, the logarithm of the river length within each prefecture, the logarithm of the prefectural altitude, the ruggedness of the terrain, and the logarithm of the prefecture's distance to capital (Beijing). The analysis encompasses 286 prefectures from 18 provinces within China-proper. Standard errors are robust and are reported in parentheses. *, **, and *** indicate significance at 10%, 5% and 1%, respectively.

Panel A. Anti-tax unrests explained by tax burden

	Anti-tax unrests	
	1	2
Land tax per capita in 1820 (log)	2.001**	
	(0.890)	
Commercial tax bureaus		0.232***
		(0.045)
Controls	Yes	Yes
R-squared	0.217	0.346
Observations	286	286

Panel B. Banks explained by anti-tax unrests and tax burden

	Number of banks	
	1	2
Anti-tax unrests × Post1914	0.380**	0.476***
	(0.147)	(0.173)
Land tax per capita in 1820 (log) × Post1914	0.955	
	(2.688)	
Commercial tax bureaus × Post1914		0.135
		(0.100)
Controls × Post1914	Yes	Yes
Prefecture and Year FE	Yes	Yes
R-squared	0.756	0.757
Observations	4,290	4,290

Table B9. Official and private banks

This table aims to provide suggestive evidence of the penetration from official banks to private banks. In column 1, the dependent variable is the number of official banks, and the explanatory variables are *Anti-tax unrests* × *Post1914* and the number of private banks (lagged one year). In column 2, the dependent variable is the number of private banks, and the explanatory variables are *Anti-tax unrests* × *Post1914* and the number of official banks (lagged one year). The regressions include baseline controls and additional controls identical to column 8 of Table 6. Prefecture and year fixed effects are included. The analysis encompasses 286 prefectures, covering the period from 1912 to 1926. Standard errors are clustered at the prefecture level and are reported in parentheses. *, **, and *** indicate significance at 10%, 5% and 1%, respectively.

	Official banks	Private banks
	1	2
Anti-tax unrests × Post1914	0.141***	0.168
	(0.052)	(0.118)
Private banks (lagged)	0.089*	
	(0.051)	
Official banks (lagged)		0.510***
		(0.176)
Controls × Post1914	Yes	Yes
Additional controls	Yes	Yes
Prefecture and Year FE	Yes	Yes
R-squared	0.850	0.656
Observations	4,290	4,290

References

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