The impact of Confucianism on gender inequality in Vietnam

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Abstract

We quantified influences of Confucianism on gender inequality in present-day Vietnam. We used the number (or density) of the most successful test takers in the Vietnamese imperial examinations (1075–1919) in a given district as a proxy for mastering the subject of Confucianism. Using an instrumental variable approach, we considered possible impacts on sex ratio and educational attainment of women relative to men, based on test score and population census data. We found that Confucianism has a long lasting impact on gender inequality. The results also suggested that women tended to try harder, perhaps as a countermeasure against discrimination.

Keywords: Confucianism; Gender inequality; Sex ratio; Education; Vietnam

JEL classification: J16, N35, Z1, I14, I24

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1. Introduction

Confucianism has played an important role, stretching back millennia, in the history of many Asian states, particularly in ancient China and its sphere of influence, which included Korea and Vietnam. For centuries, questions about Confucian ideology were included on examinations for selecting public officials to serve in the imperial courts of China and Vietnam.

The doctrines of Confucianism had the effect of relegating women to an inferior social status, making them dependent on male family members throughout their life[1]. Women were prohibited from taking the imperial examinations (Rosenlee, 2006, page 129) in China and Vietnam, and thus literary learning ("文" in Chinese) became an aspect of male privilege. In addition, Confucianism established a norm of gendered division of labor: men worked outside the home ("外" in Chinese, meaning "exterior") and women worked inside the home ("内" in Chinese, meaning "interior") (Rosenlee, 2006, page 82 and 127). It has been suggested that the oppression of women may have resulted from a combination of filiality, patrilineality, and ancestor worship (Rosenlee, 2006, page 123)[2] because filial devotion is to one's father's lineage. In this context, women and girls would be less favored compared with their male counterparts, especially in education, thereby resulting in lower female literacy rates.

The formal institutions in these states influenced by Confucianism have followed fluctuating trends regarding gender equality. First, Confucianism did not remain central to the institutions of these states. For example, both China and Vietnam had terminated their imperial examinations by 1919 and would later become Communist nations, in which the role of women was elevated, at least figuratively, when Mao Zedong proclaimed that "women hold up half of the sky." Laws enacted by communist institutions helped raise the status of women in society.

[1] The Four Books and Five Classics comprise the main canonical text of Confucianism, which prescribes three obediences and four virtues for women as filial piety. The three obediences, which originated from one of the Five Classics, instruct women to obey their father during childhood, their husband when married, and their sons when widowed, in order to maintain the social order. The four virtues impose rigid standards on women, namely, diligent work, modest manner, proper speech, and moral behavior.

[2] According to Rosenlee (2006, page 122), the practice of female infanticide dates back to at least the late Qin and early Han Dynasties (when Vietnam was dominated by Chinese Dynasties). Similarly, concubinage with the aim of producing a male heir was a common, legally recognized practice during the Han Dynasty (page 123).

For example, the Marriage and Family Law of 1959 in Vietnam protected women from concubinage and forced (in other word, child) marriage (Goodkind, 1995). Second, the impact of communism is also pronounced (Alesina and Fuchs-Schundeln, 2007). The literature shows evidence of the positive impact of communism on gender equality, including a higher labor force participation rate, a lower gender wage gap (Meng and Kidd, 1997), and almost no gender gap in literacy rate (Goodkind, 1995). Women growing up during the communist era would have had a greater incentive to compete (Booth et al., 2018).

Whereas the formal institutions in former Confucian states have changed considerably, many informal institutions remain today in the form of cultural norms (Alesina and Giuliano, 2015). Various studies (including Das Gupta et al., 2003) have suggested the influence of Confucianism as one of the causes of son preference, which has resulted in skewed sex ratios in present-day China, Korea, and Vietnam; however, these studies did not conduct direct quantitative estimations of the causal effect of Confucianism on sex ratio. Consequently, the impact of Confucianism on educational attainment remains to be elucidated.

In this paper, the relationship between Confucianism and gender inequality in Vietnam is examined. Vietnam is of interest for several reasons. First, Confucianism experienced more disruptions in Vietnam than anywhere else. For example, Chinese characters are no longer used in Vietnam and this could have impacted the written transmission of Confucianism. In addition, periods of Vietnamese history, such as French colonial rule and the division of the country into North and South Vietnam, likely fueled the shift away from Confucianism. The Vietnam War and other military conflicts led to excess mortality in the male population (Goodkind, 1995), which might have increased women's social bargaining power. Later, when the Sino-Vietnamese diplomatic relationship deteriorated in 1979, many ethnic Chinese fled Vietnam (Nguyen and Imai, 2017), which may have further distanced the country from Confucian influences.

Second, recent studies have shown mixed evidence of improvements in gender equality during the economic transition in Vietnam. On the positive side, rather than a continuous rise in inequality after the transition, Vu and Yamada (2018) showed that the gender wage gap declined from 2002 to 2014 because of increases in educational attainment and specific paid work participation by women. Similarly, the Global Gender Gap Report 2020 by the World

Economic Forum[3] ranked Vietnam 31st in economic participation and opportunity and 93rd in educational attainment[4] out of 153 selected countries. Vu (2014a) suggested that Vietnamese parents would be as concerned about their daughters' education as much as their sons' when assigning housework. The entry of various religions that were not well known to Vietnamese before the 17th century might also have had an impact on the sex ratio in Vietnam (Vu and Yamada, 2020b). On the negative side, the abovementioned report by the World Economic Forum ranked Vietnam 110th in political empowerment and 151st in health and survival, both of which are in the bottom one-third of the list. Son preference continues to be prevalent in Vietnam (Vu, 2014b) and the skewness of the sex ratio has been accelerating since 2005 (Guilmoto, 2012). Vietnamese men continue to neglect housework even when they have lower educational attainment and lower income compared with their wives (Vu, 2019b).

Third, Vu and Yamada (2020a) showed a persistent effect of Vietnamese imperial examinations on the contemporary quantity and quality of education in Vietnam. However, that study did not examine the relative educational attainment between men and women. Whether improvements in overall educational attainment are due to advancement among men or come at the expense of women remains to be clarified.

Therefore, the present study investigates the impact of Confucianism on gender inequality in present-day Vietnam in terms of the core values of Confucianism toward women and girls. Specifically, we consider two main factors, namely, female survival (sex ratio between females and males under 5 years of age) and relative educational attainment of women compared with men.

To construct a proxy for the influence of Confucianism in Vietnam, we use the number (or density) of successful test takers who passed the imperial examinations at the national level during 1075–1919 (hereinafter, Confucian elites) per district (or the district's area in square kilometers when density is used). This proxy is appropriate for several reasons. First, the content of the examinations was mainly about Confucianism. Therefore, successful examinees were very likely the most knowledgeable people about Confucianism in the country at the time. Second, Confucianism is considered to have informed many cultural norms, and cultural norms are known to be transferred via kinship, schooling, and social interaction (Becker et al., 2016).

[3] http://www3.weforum.org/docs/WEF_GGGR_2020.pdf. The lower the number, the larger the gender gap.

[4] The difference in rank between Vietnam and nearby advanced economies was not large. Singapore was ranked 84th and Japan was 91st, while China and South Korea were 100th and 101st, respectively.

Passing the national-level examinations required years of study, which in turn required proper investment in education from one's village of residence. Nguyen (2005) found old regulations that prescribed how village institutions were to facilitate Confucian education as well as the existence of common rice fields that were dedicated to sponsoring local (village) Confucian schools in ancient Vietnam.

We conducted analyses at the district and individual levels, using an instrumental variable (IV) approach. We examined whether the number (or density) of Confucian elites was associated with relative outcomes between men and women. We used the average distance from each district to the test venues (taking into account both changes in test venue location and territorial expansion to the South over time) as an IV because the distance would reflect the cost of learning. If the impact of Confucianism is minimal, we expect the estimated coefficients of interest to be statistically insignificant in explaining the outcomes.

We constructed two corresponding data sets by combining the list of Confucian elites with either the 2009 Population and Housing Census or the 2009 National Entrance Examinations to University (NEEU), matching data by district. We selected different outcomes at the district and individual levels. In the district-level data set, we calculated the following: sex ratio (boys/girls) among the population aged 0–4 years; literacy rate among the population aged 11–33; years of schooling among the population aged 22 years or older; school attendance, dropout rate, and non-enrollment among 11–14 and 15–17 age cohorts; and the participation rate in the NEEU among those born in 1991. Educational attainment ratios were specified for each gender and a corresponding relative ratio (in other words, that of men divided by that of women) was also included. Similarly, at the individual level, we used standardized test scores for the three academic subjects used in each of four NEEU classifications according to age and gender. We found a long lasting impact of Confucianism on gender inequality in Vietnam for all the above outcomes despite substantial changes in Vietnamese society and formal institutions. However, the results also suggest diminishing impacts with successive generations and responses by women to discrimination.

Our study contributes to the literature in several ways. First, it quantifies the influence of Confucianism on various outcomes in terms of the core norms of Confucianism regarding gender. Second, it provides a novel proxy for the influence of Confucianism in quantitative analysis. Specifically, this proxy captures the quality of mastering knowledge about Confucianism. Third, the results of the study demonstrate that the impact of Confucianism

survives via informal institutions, specifically kinship and social interaction, despite the lack of formal training (schools) and written language in the form of Chinese characters.

The remainder of the paper is organized as follows. Section 2 describes the data and Section 3 outlines our methods and econometric specifications. Section 4 reports the main results. Section 5 presents the conclusion and discusses some remaining issues.

2. Data

We combined a list of Confucian elites with either the 2009 Population and Housing Census or the 2009 NEEU, matching data by district to create one data set at the district level and another at the individual level (see Online Appendices 3–5 for descriptive statistics of each data set). Each data set is described in more detail below.

First, we used the list of Confucian elites compiled by Ngo (2006), which includes names, exam years, and hometowns that were recorded on stelae stored in Temples of Confucius in Hanoi and Hue, as well as in imperial documents stored in village common-houses in other regions. Ngo (2006) recorded the present-day districts of the Confucian elite's hometowns based on the old geographical locations. We counted the total number of Confucian elites between 1075 and 1919 in each district from the list.

Second, we used the 2009 Population and Housing Census conducted on April 1, 2009 by the General Statistics Office of Vietnam. The census captured 100 percent of the Vietnamese population (86.89 million) and focused on population structure and educational attainment. We aggregated various outcomes at the district level[5]. We combined the list of Confucian elites with these aggregated outcomes using the same district identity to create a district-level data set. We additionally used a 3 percent sample from the 1999 Population and Housing Census (conducted on April 1, 1999) for additional outcomes and robustness checks.

Third, we constructed the standardized test scores (z-score) of test takers born in 1991 for each of four test classifications (A, B, C, and D) from the 2009 NEEU and matched them with the list of Confucian elites according to the family-registration district of the NEEU test takers to create an individual-level data set. Also, we calculated the total number of NEEU test takers per district and added this information to the district-level data set[6]. This cohort of NEEU

[5] See the section "Specification".
[6] About 44 percent of 2009 high school graduates took the 2009 NEEU.

test takers was expected to have graduated high school in May 2009. Furthermore, in 2009, test takers born in 1991 would have no repeated grade levels within 12 years of education. This cohort comprised about 87 percent of all registered test takers.

The NEEU is administered by the Vietnamese Ministry of Education and Training (MoET). MoET chose the test exams dates, academic subjects, and classifications in March 2009. All test takers had to register with MoET by May 2009 to take the NEEU, which determines university placement. During the registration process, applicants had to fill in the hometown district listed in their family register[7].

The 2009 NEEU had 11 classifications, identified by letters of the alphabet; 98 percent of test takers sat for classifications A, B, C, and D (for a detailed description of the 2009 NEEU, see Vu, 2019a and/or Vu and Yamada, 2020a). Each classification comprised three subjects. For example, classification A had physics, mathematics, and chemistry tests. The exams for classifications A and V were held on July 4–5, 2009 and the rest were held on July 9–10, 2009.

University placement was based on the total score of the three subjects in each classification. A university can use several classifications for placement. However, the classifications and their respective quotas were determined and announced in March–April 2009, before test takers registered with MoET. The test problems for the subjects in each classification were the same nationwide, as was the test time. The cut-off score for university placement was decided only after all answer sheets had been scored (probably in August 2009). Once all the scores were recorded, universities ranked the test scores from highest to lowest and counted from the top until the pre-determined quota of students was filled. Therefore, the goal of each test taker was to achieve the highest score they could in order to receive the placement of their choice. The distribution of test scores did not have a passing hurdle (see Vu, 2019a) as is sometimes the case to get a high school diploma.

In addition, we used geographical information from each district as control variables. We integrated this information into both the individual- and district-level data sets according to district. More specifically, we obtained information on 2009 nighttime light data from the US National Oceanic and Atmospheric Administration (Version 4 DMSP-OLS Nighttime Lights Time Series), the 1992 Global Land Cover Characterization, and the 1996 Landsat Imagery from the United States Geological Survey Earth Resources Observation and Science Center. We calculated the mean nighttime light intensity, elevation, cropland ratio, and urban

[7] According to examination regulations, university preferences cannot be changed.

land ratio for each district. We also measured the distance from each district to the coastline using shape files (Version 3.6) obtained from the Database of Global Administrative Areas (www.gadm.org).

3. Methods and specifications

3.1 Methods

We used a reduced form equation to regress the outcomes of each district i on the number of Confucian elites ($nElite_i$) (and separately, their density, $dElite_i$) located in the district in an ordinary least squares estimation followed by an instrumental approach. The outcomes cover sex ratio and educational attainment by gender. We used the same methods for both sets of data (district- and individual-level). Here, we describe the methods for the district-level data set only.

Our target is to estimate γ

(1) $Outcomes = \gamma.\widehat{nElite}_i + \delta.X_i + \epsilon_i$,

where X_i is a vector of the natural conditions and characteristics of the district. However, Vu and Yamada (2020a) showed several reasons why the number of Confucian elites would not be random. One such reason is that some districts would have had relative advantages in terms of educational facilities in the past. Therefore, we need to conduct an instrumental approach in which (1) is the second stage.

Before estimating (1), we implemented the first stage

(2) $nElite_i = \alpha.IV_i + \beta.X_i + \varepsilon_i$,

where IV_i is an IV. The fitted value from (2) is used in the second stage of equation (1). Specifically, we implemented a two-step feasible general method of moment with robust standard errors, with the ratio of district populations to country populations as weights.

Following Vu and Yamada (2020a), we took advantage of variations in the test venues and the expansion of Vietnamese territory (see Online Appendix 1 and 2) to construct the IV for the number of Confucian elites. More specifically, we constructed an average distance from each district to the corresponding test venues for each examination from 1075–1919. The distance serves as a proxy for educational costs. Because Vietnam is long, narrow, and crossed

by mountains, the cost of traveling to the test venue would have accounted for a large proportion of the total educational expenditure for each test taker. We applied Vu and Yamada's (2020a) suggestion to use the maximum distance (in other words, 2272 km) for those districts that were not yet part of Vietnam during the test year. We also substituted this number with other values (3000 km and 4000 km) for robustness checks.

We have some evidence and arguments for the validity of our IV choice. First, the average distance was an important part of the total educational expenditure for the test takers. The average distance explains well the number of elites (density of elites), as shown in Online Appendix 6. Its coefficients were statistically significant regardless of whether the province fixed effect was in place. Second, the IV is not related to the present-day density of schools and health facilities. Following Vu and Yamada (2020a), we estimated these correlations as per Online Appendix 7. When the province fixed effect was in place, the coefficient of this distance became statistically insignificant. Therefore, if the IV can influence the education, health, and relative gender outcomes, the channel should be through the variable of interest ($nElite/dElite$).

3.2 Specifications

From the two corresponding data sets, we constructed 11 categories of outcomes for the district-level analysis and 16 types of test score outcomes for the individual-level analysis. Wherever possible, we generally had three outcomes for each category. We constructed one outcome for each gender and a relative one by dividing that of female by that of male. The relative outcomes show differences among districts in terms of gender inequality.

For the general district indicator, we counted the number of boys aged 0–4 years and divided by the number of girls in the same age group to determine the $sex\ ratio$ for each district. Next, we selected a cohort of 11–33-year-olds to count the $literacy\ rate$ for each district. This age range was chosen because primary school education is compulsory in Vietnam for those aged 6–10 years, so individuals over the age of 11 years can be expected to have attended school in the past, and because those born in or after 1976 (the year after Vietnam reunited) would be 33 years old or younger in 2009 and would have been subject to the same educational policies. In addition, we counted the average years of schooling for each district based on its population aged 22 years and older, the majority of whom completed their education in 2009.

For age cohort-specific district indicators on education, we added three outcomes for two age cohorts (11–14 and 15–17) corresponding to middle school and high school. For each age cohort, we considered the school attendance rate for each district by dividing the number of people confirmed as "attending school" as of April 1, 2009 by the corresponding total population of the same age cohort. We performed the same calculation for those who had dropped out of school as of April 1, 2009[8]. We also calculated the non-enrollment rate in each district for both age cohorts. In addition, we added the school attendance rate and NEEU test-taking rate for the population of those born in 1991 for each district. Therefore, the denominator of the formula used to determine the NEEU test-taking rate included the population of those born in 1991 and those attending school.

Finally, we used seven district characteristics as controls in every estimation, including the ratio of the Kinh ethnic group in 2009, population density, nighttime light intensity, 1996 elevation, 1992 cropland and urban land ratio, and the distance to the coastline. The information was taken from the 2009 population census and the abovementioned satellite data. We also added a specific variable for individual characteristics, $no\ privilege$, to the controls in individual-level estimations. The opposite status, *privilege*, was associated with an educational policy that granted a fixed number of extra points to individuals whose parents or who themselves were veterans and/or national (labor) heroes.

4. Results

4.1 Sex ratio and general educational attainment

We found a impact of Confucianism in the 2009 sex ratio among children under 5 years of age in the district. More specifically, the presence of an additional Confucian elite had a nexus with 18 "missing" girls (in other words, 18 additional boys) among 10,000 girls in the 0–4 age cohort in the district, as shown in Column (8) of Table 1. This equals 227 missing girls (45 annually) for a typical Vietnamese district in Vietnam with a population of about 126,000 people. We considered sex selection as a black box and counted only the outcome (the sex ratio). The black box contained both prenatal selection (sex-selective abortion) and postnatal selection (neglect of daughters). Previous demographic studies have blamed Confucianism

[8] Wednesday, April 1, 2009 was in the school calendar.

(son preference) for sex-selective abortions without statistical evidence. Our continuous variable for the number of Confucian elites would be the best statistical evidence for this argument. However, our results do not imply that districts lacking Confucian elites have not been influenced by Confucianism as manifested by son preference.

[Insert Table 1 here]

In addition, the number missing girls is very likely due to prenatal sex selection. This is because a lower child mortality rate was associated with a higher number of elites in the district, as shown in Online Appendix 15. We performed a similar exercise with a 3 percent sample of the 1999 Population and Housing Census and used the average child mortality rate per district as the outcome. The rate was calculated from the respondents' total number of children and how many of these children had died[9].

Similarly, we found a impact of Confucianism on gender inequality in two other important outcomes related to educational attainment, namely, literacy and years of schooling, as shown in columns (11) and (14) of Table 1. The presence of an additional elite was associated with a 0.0004 times higher male literacy in the district. Similarly, if both genders went to school, an additional elite in the district's history was associated with 0.0012 additional years of male schooling.

However, the presence of Confucian elites in a district does not always translate into negative outcomes for women and girls. We found that the presence of Confucian elites was associated with a 0.002 times lower probability of female illiteracy compared with districts lacking Confucian elites, as well as an additional 0.1 years of schooling regardless of gender.

4.2 Educational attainment for specific age cohorts

We further investigated the timing when girls' educational attainment diverged from boys' in association with Confucian elites. We chose the 11–14 and 15–17 age cohorts because the 6–10 cohort was subject to compulsory education. Higher age was associated with higher risk of budget constraints and gender inequality.

We found that gender inequality is persistently associated with the number of Confucian elites in outcomes, including school attendance and non-enrollment rates. In relative terms, an additional elite had a nexus with a 0.002 (0.004) times lower school attendance rate

[9] No gender was specified in the questionnaires.

and a 0.011 (0.015) times higher probability of non-enrollment for age cohort 11–14 (15–17), as per Table 3 (Table 4). However, we also noted that gender inequality associated with the presence of Confucian elites tended to be lower in the younger age cohort (11–14).

[Insert Tables 2 and 3 here]

However, we also found the opposite effect in the outcome of school dropout rate, as shown in column (15) of Tables 2 and 3. The presence of an elite was associated with a 0.003–0.004 times lower relative school dropout rate for girls compared with boys.

In addition, we noted that in comparison with their counterparts' outcomes in other districts, both genders in a district that was home to Confucian elites had higher educational attainment in association with the number of elites (see columns (9), (10), (12), and (13) of Table 1). Thus, the presence of Confucian elites does not always translate into negative outcomes for present-day generations, only in the relative comparisons between genders residing in the same area.

We specifically selected individuals born in 1991 to investigate arguably the most important test in their life, the 2009 NEEU, which would determine their university placement (Table 4). The test divides individuals into two different groups with significant differences in years of schooling (4– 5 years or more, with a tertiary degree). For the outcome of school attendance rate, the results were similar to those of the 15–17 age cohort. Boys in districts that had been home to Confucian elites had the same probability of taking the 2009 NEEU as did boys in non-elite districts. In contrast, girls had a 0.004 times higher probability of taking the 2009 NEEU in association with the presence of an additional elite (columns (10) and (11) in Table 4). As a result, the relative female-to-male ratio favors girls by as much as 0.013 times. The 2009 NEEU test fee was about USD 2 per test classification and the majority of Vietnamese universities in 2009 were public institutions. To understand why girls in elite district were more likely to take the NEEU in association with the number of Confucian elites in their district, we investigated the 2009 NEEU test scores.

[Insert Table 4 here]

We found that coefficients of the number of Confucian elites tended to be higher in samples of girls compared with those in samples of boys for classifications A, C, and D, as shown in Table 5. In particular, differences in coefficients were magnified when female test takers were the majority in the classification. The majority of NEEU test takers sat for

classifications A, C, and D. Therefore, we speculated that the higher probability of taking the NEEU among girls in districts that were home to Confucian elites was likely due to self-selection. Despite some gender discrimination resulting from district-based norms, girls in these districts had better learning outcomes (educational quality) on average than their counterparts in non-elite districts. This speculation may also apply to the results on relatively lower school dropout rate, as shown in column (15) of Tables 2 and 3.

[Insert Table 5 here]

4.3 Robustness checks

First, we replaced the number of elites per district with the density of elites per district in square kilometers and repeated all the main estimations. In general, the results of the new estimations were consistent with those of the original estimations, as shown in Online Appendices 8–12. There were two exceptions corresponding to male educational outcomes, namely, the subjects Geography and Foreign Language, as shown in Online Appendix 12. The corresponding coefficients were statistically insignificant. In addition, we noted that boys in elite districts performed worse in History compared with their counterparts in non-elite districts, in association with elites according to either specification ($nelite$ or $delite$). Unfortunately, we did not have sufficient data about the families of the 2009 NEEU test takers to adequately explain this specific statistical result. However, our interpretation of the sum of scores should be valid regardless of these specific subject-related differences.

Second, we repeated the main estimations in Tables 1–5 using different assumptions about the maximum distance. Specifically, we replaced 2272 km with 3000 and 4000 km as alternatives. The corresponding coefficients of these alternatives were exactly the same as those from the main estimations (Online Appendix 13).

Third, we were aware of spatial correlations (Kelly, 2019) and used a corresponding method suggested by Colella et al. (2019). We repeated the estimations for several assumptions about distance where spatial correlations may be most pronounced (namely 25, 50, and 100 km). A typical district with an area of 435 km^2 is approximately equal to a circle with a radius of 12 km. Therefore, a special correlation setting with 25 km would be a reasonable assumption because this is the approximate distance between directly adjacent districts. The results with the 25-km assumption (Online Appendix 14) were similar to our main results.

5. Conclusions and discussion

We examined whether there is a persistent effect of Confucianism, proxied by the number (or density) of Confucian elites in a district, in gender inequality in present-day Vietnam despite enormous changes in formal institutions over many years. We applied the average distance from each district to the test venues as an instrumental variable. We found that the impact of Confucianism is still lasting in terms of sex ratio, literacy rate, school non-enrollment rate, and years of schooling. Among the three channels of transmission suggested by Becker et al. (2016), kinship and social interaction are the most likely explanations for the observed outcomes. Meanwhile, we found an upside for girls, who are likely more determined to attain more years of schooling, as evidenced by relatively lower school dropout rates, higher likelihood of taking the NEEU, and higher NEEU test scores in association with the number of Confucian elites in their district. This is perhaps the result of compensating for gender discrimination. In addition, the results suggest that the impact of Confucianism tends to be weaker for younger age cohorts.

We acknowledge several limitations of our study. First, non-elite districts might have applied Confucian practices at different levels; however, we considered all non-elite districts to be of the same level. Second, the list of Confucian elites used in this study is the largest such list presently available, but it is incomplete. Fourth, we could not adequately explain why boys underperformed in Geography in association with the number (or density) of elites. These limitations will be addressed in a future research scheme when more data and information are available for analysis.

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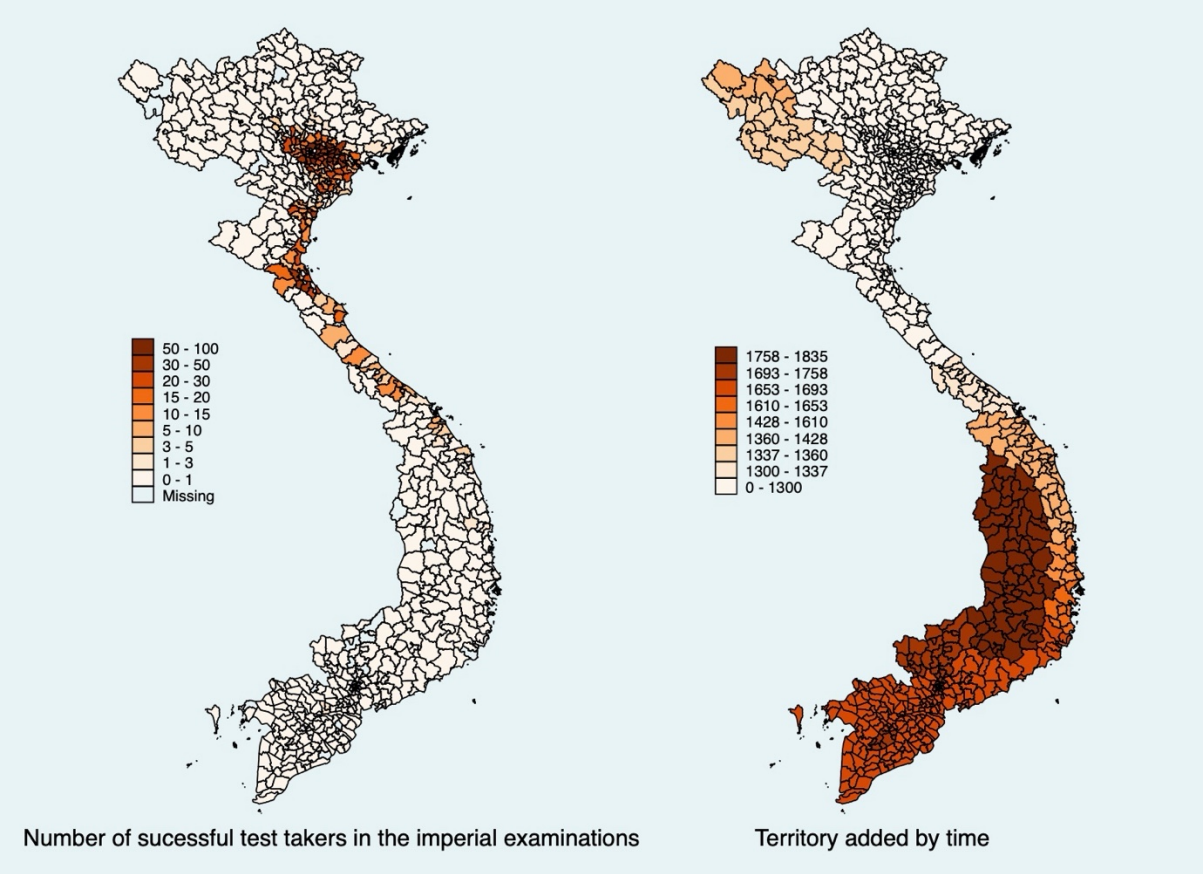
Online Appendix 1 Imperial examinations in Vietnam, 1075–1919

Year of exams	Dynasty	Test venue		Raw data	
		Province	District	Test times	Elites
1075–1225	Ly	Hanoi	Ba Dinh	4	11
1232–1393	Tran	Hanoi	Ba Dinh	16	49
1400–1405	Ho	Thanh Hoa	Vinh Loc	3	11
1426–1526	Le	Hanoi	Ba Dinh	32	1,008
1529–1592	Mac	Hanoi	Ba Dinh	22	482
1554–1595	Le	Thanh Hoa	Tho Xuan	8	51
1598–1787	Le	Hanoi	Ba Dinh	64	723
1822–1919	Nguyen	Thua Thien Hue	Hue	39	553
Sum				188	2,888

Source: Ngo (2006).

Online Appendix 2 Number of elites and approximate territory expansion timelines



Notes:
The map is from Vu and Yamada (2020a). The timeline for territory expansion is based on Tran (1920), used for constructing the instrumental variable only.

Online Appendix 3 Descriptive statistics of general indicators

Variable	*Mean*	*Std. Dev.*	*Min*	*Max*
Number of elites (*Elite number*)	4.1325	11.2106	0	98
Density of elites (*Elite density*)	0.0547	0.3444	0	7.7807
Instrumental variable (km)	999.96	845.57	23	2,127
District population	126,227	87,751	83	701,194
District area (km^2)	435	403	1.54	2,679
Urban land rate	0.0228	0.1147	0	1
Cropland rate	0.4697	0.3165	0	1
Elevation mean (m)	216	310	1	1,545
Distance to coastal line (km)	86	85	0.23	435
Nighttime light intensity	8.39	14.19	0	63
Sex ratio (< 5 years old)	1.0812	0.0432	0.7143	1.2583
Literate (11-33 years old)				
Female (F)	0.9391	0.1026	0.3361	1
Male (M)	0.9606	0.0454	0.6382	1
Relative (F/M)	0.9748	0.0773	0.4594	1.0345
Years of schooling (22+)				
Female (F)	7.1009	2.2856	2.8169	54.5
Male (M)	7.4859	1.6114	2.9309	13.7852
Relative (F/M)	0.9503	0.1402	0.7703	4.3077

Notes:
N = 687 districts

Online Appendix 4 Descriptive statistics of district data on educational outcomes

Variable	*N* district	*Mean*	*Std. Dev.*	*Min*	*Max*
Panel A: 11-14 years old population					
School attendance rate					
Female (F)	687	0.8863	0.1018	0.3761	1
Male (M)	686	0.8775	0.0871	0.5235	0.9876
Relative (F/M)	686	1.0098	0.0655	0.5702	1.3626
School dropout rate					
Female (F)	687	0.0903	0.0718	0	0.3175
Male (M)	686	0.1041	0.0723	0.0090	0.3171
Relative (F/M)	686	0.8302	0.2270	0.1972	1.9668
Never-enroll rate					
Female (F)	687	0.0233	0.0496	0	0.4909
Male (M)	686	0.0183	0.0240	0	0.2430
Relative (F/M)	685	1.0026	0.6009	0	4.9914
Panel B: 15-17 years old population					
School attendance rate					
Female (F)	686	0.6593	0.1687	0.1643	0.9516
Male (M)	686	0.6100	0.1532	0.0909	0.9431
Relative (F/M)	686	1.0882	0.1754	0.3962	3.8824
School dropout rate					
Female (F)	686	0.3105	0.1410	0.0460	0.7452
Male (M)	686	0.3692	0.1399	0.0542	0.9091
Relative (F/M)	686	0.8315	0.1502	0.4054	1.4544
Never-enroll rate					
Female (F)	686	0.0301	0.0667	0	0.6025
Male (M)	686	0.0207	0.0278	0	0.3088
Relative (F/M)	684	1.1059	0.8043	0	7.1286
Panel C: 1991-born population					
School attendance rate					
Female (F)	686	0.5815	0.1881	0.1270	0.9299
Male (M)	686	0.5189	0.1714	0.1000	0.9220
Relative (F/M)	686	1.0660	0.1767	0.3016	2.1948
NEEU taken rate					
Female (F)	680	0.5182	0.1552	0	0.9498
Male (M)	682	0.3739	0.1379	0	0.9485
Relative (F/M)	677	1.4805	0.4403	0	6

Online Appendix 5 Descriptive statistics of 2009 NEEU test scores by gender and test classification

	Female		Male	
Variable	*Mean*	*Std. Dev.*	*Mean*	*Std. Dev.*
A classification				
Z-score				
Sum	–0.0647	0.9617	0.0719	1.0362
Physics	–0.0261	0.9721	0.0293	1.0294
Mathematics	–0.0836	0.9721	0.0926	1.0221
Chemistry	–0.0605	0.9577	0.0673	1.0408
No privilege	0.9063	0.2915	0.8926	0.3096
N	178,796		162,059	
B classification				
Z–score				
Sum	–0.0936	0.9759	0.1098	1.0167
Biology	–0.0791	1.0055	0.0921	0.9857
Mathematics	–0.0880	0.9659	0.1033	1.0291
Chemistry	–0.0675	0.9559	0.0794	1.0438
No privilege	0.8988	0.3015	0.9069	0.2906
N	96,083		82,621	
C classification				
Z-score				
Sum	0.0296	1.0098	–0.1319	0.9431
Literature	0.0940	0.9891	–0.4141	0.9388
History	–0.0118	1.0023	0.0489	0.9870
Geography	0.0039	1.0082	–0.0170	0.9617
No privilege	0.8524	0.3547	0.8566	0.3505
N	41,420		9,301	
D classification				
Z–score				
Sum	–0.0003	1.0036	0.0032	0.9848
Literature	0.1081	0.9796	–0.4539	0.9569
Mathematics	–0.0477	0.9793	0.2030	1.0594
Foreign language	–0.0266	0.9849	0.1134	1.0544
No privilege	0.9424	0.2330	0.9546	0.2081
N	89,741		21,288	

Online Appendix 6 Correlations between number of elites and the instrumental variable

Elite	Number	Number	Number	Number	Density	Density	Density	Density
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
The instrumental variable	–0.0073***	–0.0591**	–0.0074***	–0.0525**	–0.0001***	–0.0030***	–0.0001***	–0.0021***
	(0.0008)	(0.0255)	(0.0007)	(0.0230)	(0.0000)	(0.0010)	(0.0000)	(0.0006)
Other controls	No	No	Yes	Yes	No	No	Yes	Yes
Province FE		Yes		Yes		Yes		Yes
R-squared	0.239	0.584	0.371	0.620	0.056	0.242	0.204	0.365

Notes:
Other controls included the Kinh ethnic rate, nighttime light intensity, population density in 2009, urban land ratio and cropland ratio in 1992, mean elevation in 1996, and distance to the coastline. Robust standard errors in parentheses (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$). P-weight was in all estimations. N = 687.

Online Appendix 7 Correlations between density of present-day facilities and the instrumental variable

	Education			Health		
Variables	Secondary school	High school	University	Hospital	Clinic	Communal health station
	(1)	(2)	(3)	(4)	(5)	(6)
Without province FE						
Instrumental variable	–0.0000***	–0.0000***	–0.0000**	–0.0000***	–0.0000**	–0.0000***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
R-squared	0.617	0.178	0.368	0.137	0.047	0.615
With province FE						
Instrumental variable	–0.0000	0.0000	–0.0000	0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
R-squared	0.685	0.312	0.491	0.266	0.289	0.756

Notes:
$N = 687$ districts. All estimations included the Kinh ethnic rate, nighttime light intensity, population density in 2009, urban land ratio and cropland ratio in 1992, mean elevation in 1996, and distance to the coastline. Outcomes were measured in density (per capita in 2009). Robust standard errors in parentheses (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$). P-weight was in all estimations.

Online Appendix 8 Repeating estimations in Table 1 using elite density

Age cohort	0-4	11-33			22+		
Variables	Sex ratio	Literate rate			Years of schooling		
	M/F	Female	Male	F/M	Female	Male	F/M
OLS	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Elite density	0.0113	0.0043	0.0045	0.0001	0.8373*	0.7229*	0.0155**
	(0.0074)	(0.0027)	(0.0028)	(0.0009)	(0.4480)	(0.4074)	(0.0071)
R-squared	0.240	0.566	0.410	0.557	0.532	0.589	0.289
IV 2nd stage	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Elite density	0.1155***	0.1084***	0.1303***	–0.0246**	7.1748***	8.1947***	–0.0778***
	(0.0273)	(0.0258)	(0.0286)	(0.0103)	(1.3841)	(1.6326)	(0.0282)
F-statistics†	23.90	23.90	23.90	23.90	23.90	23.90	23.90

Notes:
Similar to Table 1. $N = 687$ districts

Online Appendix 9 Repeating estimations in Table 2 using elite density

	School attendance rate			School dropout rate			Never-enroll rate		
	Female	Male	F/M	Female	Male	F/M	Female	Male	F/M
OLS	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Elite density	0.0294*	0.0291	0.0002	–0.0270*	–0.0271	–0.0373*	–0.0024*	–0.0021	0.0148
	(0.0175)	(0.0178)	(0.0013)	(0.0162)	(0.0166)	(0.0224)	(0.0014)	(0.0013)	(0.0258)
R-squared	0.233	0.165	0.301	0.153	0.144	0.196	0.428	0.286	0.428
IV 2nd stage	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Elite density	0.5375***	0.6347***	–0.1292***	–0.5027***	–0.5711***	–0.2435***	–0.0356***	–0.0645***	0.6892***
	(0.1134)	(0.1340)	(0.0308)	(0.1059)	(0.1204)	(0.0853)	(0.0094)	(0.0142)	(0.1906)
F-statistics†	23.90	23.90	23.90	23.90	23.90	23.90	23.90	23.90	23.90
N districts	687	686	686	687	686	686	687	686	685

Note: Similar to Table 1.

Online Appendix 10 Repeating estimations in Table 3 using elite density

	School attendance rate			School dropout rate			Never-enroll rate		
	Female	Male	F/M	Female	Male	F/M	Female	Male	F/M
OLS	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Elite density	0.0656	0.0628	0.0029	–0.0624	–0.0601	0.0100	–0.0032*	–0.0027	–0.02659
	(0.0419)	(0.0395)	(0.0058)	(0.0403)	(0.0378)	(0.0202)	(0.0018)	(0.0018)	(0.0217)
R-squared	0.233	0.246	0.272	0.181	0.232	0.264	0.438	0.258	0.420
IV 2nd stage	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Elite density	1.0177***	1.0988***	–0.2697***	–0.9710***	–1.0178***	–0.1802**	–0.0474***	–0.0817***	0.9571***
	(0.2116)	(0.2288)	(0.0710)	(0.2019)	(0.2116)	(0.0770)	(0.0126)	(0.0180)	(0.2606)
F-statistics†	23.90	23.90	23.90	23.90	23.90	23.90	23.90	23.90	23.90
N districts	686	686	686	686	686	686	686	686	684

Note: Similar to Table 1.

Online Appendix 11 Repeating estimations in Table 4 using elite density

	School attendance rate			NEEU test taking rate		
	Female	Male	F/M	Female	Male	F/M
OLS	(1)	(2)	(3)	(4)	(5)	(6)
Elite density	0.0813	0.0765	0.0006	0.0277***	0.0219***	0.0017
	(0.0519)	(0.0476)	(0.0059)	(0.0087)	(0.0078)	(0.0131)
R-squared	0.233	0.264	0.092	0.389	0.487	0.340
IV 2nd stage	(7)	(8)	(9)	(10)	(11)	(12)
Elite density	1.2082***	1.2268***	–0.2828***	0.2685***	–0.0201	0.8286***
	(0.2488)	(0.2532)	(0.0795)	(0.0782)	(0.0439)	(0.2021)
F-statistics†	23.90	23.90	23.90	23.79	23.84	23.79
N districts	686	686	686	680	682	677

Note: Similar to Table 1.

Online Appendix 12 Repeating estimations in Table 5 using elite density

Classification	A				B			
Variables	Sum	Physics	Mathematics	Chemistry	Sum	Biology	Mathematics	Chemistry
Female sample	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Elite density	1.2107***	1.4623***	0.6556***	1.0561***	1.8797***	0.0670	2.5268***	1.4805***
	(0.3550)	(0.4239)	(0.2025)	(0.3105)	(0.3766)	(0.1048)	(0.4997)	(0.3033)
F–statistics†	12.23	12.23	12.23	12.23	26.79	26.79	26.79	26.79
N test takers	178,796	178,796	178,796	178,796	96,083	96,083	96,083	96,083
Male sample	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Elite density	0.8553***	0.8748***	0.5116***	0.8779***	1.7958***	–0.2493**	2.3224***	1.7951***
	(0.2687)	(0.2731)	(0.1676)	(0.2754)	(0.4273)	(0.0970)	(0.5479)	(0.4247)
F–statistics†	10.55	10.55	10.55	10.55	18.72	18.72	18.72	18.72
N test takers	162,059	162,059	162,059	162,059	82,621	82,621	82,621	82,621
Classification	C				D			
Variables	Sum	Literature	History	Geography	Sum	Literature	Mathematics	Foreign language
Female sample	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Elite density	2.8123***	4.7486***	0.8923***	1.6106***	1.0279***	1.5325***	0.7247***	0.1955**
	(0.4477)	(0.7047)	(0.2518)	(0.3206)	(0.3601)	(0.5345)	(0.2573)	(0.0818)
F–statistics†	48.84	48.84	48.84	48.84	8.10	8.10	8.10	8.10
N test takers	41,420	41,420	41,420	41,420	89,741	89,741	89,741	89,741
Male sample	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)
Elite density	0.3823*	2.4610***	–0.7489***	–0.3248	0.4747**	0.6305**	0.5152**	–0.1057
	(0.1985)	(0.5813)	(0.2696)	(0.1983)	(0.1843)	(0.2485)	(0.2067)	(0.0651)
F–statistics†	20.91	20.91	20.91	20.91	6.23	6.23	6.23	6.23
N test takers	9,301	9,301	9,301	9,301	21,288	21,288	21,288	21,288

Note:
Similar to Table 5.

Online Appendix 13 Effects on present-day relative ratio accounting for different maximum distance when constructing the IV

Age	0-4	11-33	11-14			15-17			1991-born		22+
Variables	Sex ratio	Literate rate	Attendance	Dropout	Never-enroll	Attendance	Dropout	Never-enroll	Attendance	NEEU test taking	Years of schooling
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Max = 3000km											
Elite number	0.0018***	–0.0004***	–0.0021***	–0.0039***	0.0110***	–0.0043***	–0.0029***	0.0153***	–0.0045***	0.0133***	–0.0012***
	(0.0002)	(0.0001)	(0.0003)	(0.0011)	(0.0022)	(0.0008)	(0.0010)	(0.0029)	(0.0010)	(0.0019)	(0.0003)
Max = 4000km											
Elite number	0.0018***	–0.0004***	–0.0021***	–0.0039***	0.0110***	–0.0043***	–0.0029***	0.0153***	–0.0045***	0.0133***	–0.0012***
	(0.0002)	(0.0001)	(0.0003)	(0.0011)	(0.0022)	(0.0008)	(0.0010)	(0.0029)	(0.0010)	(0.0019)	(0.0003)
N districts	687	687	686	686	685	686	686	684	686	677	687

Online Appendix 14 Effects on present-day relative ratio accounting for spatial correlations

Age	0-4	11-33	11-14			15-17			1991-born		22+
Variables	Sex ratio	Literate rate	Attendance	Dropout	Never-enroll	Attendance	Dropout	Never-enroll	Attendance	NEEU test taking	Years of schooling
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Cutoff = 25km											
Elite number	0.0018***	–0.0004**	–0.0021***	–0.0039***	0.0110***	–0.0043***	–0.0029**	0.0153***	–0.0045***	0.0133***	–0.0012**
	(0.0003)	(0.0002)	(0.0005)	(0.0013)	(0.0031)	(0.0012)	(0.0012)	(0.0043)	(0.0013)	(0.0032)	(0.0006)
Cutoff = 50km											
Elite number	0.0018***	–0.0004	–0.0021***	–0.0039**	0.0110***	–0.0043**	–0.0029**	0.0153***	–0.0045**	0.0133***	–0.0012
	(0.0003)	(0.0003)	(0.0007)	(0.0016)	(0.0042)	(0.0017)	(0.0015)	(0.0056)	(0.0019)	(0.0042)	(0.0008)
Cutoff = 100km											
Elite number	0.0018***	–0.0004	–0.0021***	–0.0039*	0.0110**	–0.0043**	–0.0029**	0.0153**	–0.0045*	0.0133***	–0.0012*
	(0.0003)	(0.0004)	(0.0008)	(0.0021)	(0.0052)	(0.0020)	(0.0017)	(0.0067)	(0.0024)	(0.0048)	(0.0007)
N districts	687	687	686	686	685	686	686	684	686	677	687

Online Appendix 15 The impact of Confucianism on child mortality using the IV approach and a 3 percent sample of the 1999 Population and Housing Census

	(1)	(2)
Elite number	–0.0002**	–0.0004***
	(0.0001)	(0.0001)
F-statistics[†]	69.05	90.75
Other controls	No	Yes

Notes:
Similar to Table 1. $N = 535$ districts. We used only consistent districts matched between administration divisions in 1999 and 2009.

Table 1 The impact of Confucianism on sex ratio, literacy rate, and years of schooling

Age cohort	0-4	11-33			22+		
	Sex ratio	Literate rate			Years of schooling		
	M/F	Female	Male	F/M	Female	Male	F/M
OLS	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Elite number	0.0011***	0.0003***	0.0005***	–0.0002***	0.0306***	0.0339***	–0.0002
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0050)	(0.0048)	(0.0002)
R-squared	0.351	0.568	0.433	0.558	0.550	0.623	0.279
IV 2nd stage	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Elite number	0.0018***	0.0017***	0.0021***	–0.0004***	0.1147***	0.1310***	–0.0012***
	(0.0002)	(0.0003)	(0.0002)	(0.0001)	(0.0114)	(0.0128)	(0.0003)
F-statistics†	119.19	119.19	119.19	119.19	119.19	119.19	119.19

Notes:
† *Kleibergen-Paap Wald rk F statistic* for testing H0: Weak identification test.
Robust standard errors in parentheses (*** p < 0.01, ** p < 0.05, * p < 0.1).
P-weight was in all estimations.
Other controls were the Kinh ethnic rate, nighttime light intensity, population density in 2009, urban land ratio and cropland ratio in 1992, mean elevation in 1996, and distance to the coastline in every estimation.
N = 687.

Table 2 The impact of Confucianism on pursuing education among the 11–14 age cohort

	School attendance rate			School dropout rate			Never-enroll rate		
	Female	Male	F/M	Female	Male	F/M	Female	Male	F/M
OLS	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Elite number	0.0024***	0.0026***	–0.0003***	–0.0023***	–0.0024***	–0.0028***	–0.0001***	–0.0002***	0.0019*
	(0.0003)	(0.0003)	(0.0001)	(0.0003)	(0.0003)	(0.0006)	(0.0000)	(0.0000)	(0.0011)
R-squared	0.320	0.289	0.308	0.278	0.285	0.220	0.430	0.304	0.431
IV 2nd stage	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Elite number	0.0086***	0.0101***	–0.0021***	–0.0080***	–0.0091***	–0.0039***	–0.0006***	–0.0010***	0.0110***
	(0.0008)	(0.0010)	(0.0003)	(0.0008)	(0.0009)	(0.0011)	(0.0001)	(0.0001)	(0.0022)
F-statistics†	119.19	119.19	119.19	119.19	119.19	119.19	119.19	119.19	119.19
N districts	687	686	686	687	686	686	687	686	685

Note: Similar to Table 1.

Table 3 The impact of Confucianism on pursuing education among the 15–17 age cohort

	School attendance rate			School dropout rate			Never-enroll rate		
	Female	Male	F/M	Female	Male	F/M	Female	Male	F/M
OLS	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Elite number	0.0049***	0.0048***	–0.0005	–0.0048***	–0.0046***	–0.0024***	–0.0002***	–0.0003***	0.0024*
	(0.0006)	(0.0006)	(0.0004)	(0.0005)	(0.0006)	(0.0007)	(0.0000)	(0.0000)	(0.0013)
R-squared	0.342	0.362	0.275	0.309	0.351	0.296	0.439	0.281	0.422
IV 2nd stage	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Elite number	0.0163***	0.0176***	–0.0043***	–0.0155***	–0.0163***	–0.0029***	–0.0008***	–0.0013***	0.0153***
	(0.0015)	(0.0017)	(0.0008)	(0.0015)	(0.0016)	(0.0010)	(0.0001)	(0.0001)	(0.0029)
F-statistics†	119.19	119.19	119.19	119.19	119.19	119.19	119.19	119.19	119.19
N districts	686	686	686	686	686	686	686	686	684

Note: Similar to Table 1.

Table 4 The impact of Confucianism on school attendance and NEEU test-taking rate among those born in 1991

	School attendance rate			NEEU test taking rate		
	Female	Male	F/M	Female	Male	F/M
OLS	(1)	(2)	(3)	(4)	(5)	(6)
Elite number	0.0058***	0.0054***	–0.0005	0.0007	–0.0005	0.0031***
	(0.0007)	(0.0006)	(0.0004)	(0.0007)	(0.0005)	(0.0008)
R-squared	0.350	0.375	0.094	0.387	0.484	0.354
IV 2nd stage	(7)	(8)	(9)	(10)	(11)	(12)
Elite number	0.0193***	0.0196***	–0.0045***	0.0043***	–0.0003	0.0133***
	(0.0018)	(0.0019)	(0.0010)	(0.0011)	(0.0007)	(0.0019)
F-statistics†	119.19	119.19	119.19	118.82	118.89	118.85
N districts	686	686	686	680	682	677

Note: Similar to Table 1.

Table 5 The impact of Confucianism on 2009 NEEU z-scores by gender using the IV approach

Classification	A				B			
Variables	Sum	Physics	Mathematics	Chemistry	Sum	Biology	Mathematics	Chemistry
Female sample	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Elite number	0.0241***	0.0291***	0.0130***	0.0210***	0.0224***	0.0008	0.0301***	0.0176***
	(0.0023)	(0.0027)	(0.0016)	(0.0021)	(0.0024)	(0.0012)	(0.0030)	(0.0020)
F–statistics†	134.09	134.09	134.09	134.09	127.24	127.24	127.24	127.24
N test takers	178,796	178,796	178,796	178,796	96,083	96,083	96,083	96,083
Male sample	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Elite number	0.0190***	0.0194***	0.0114***	0.0195***	0.0256***	–0.0036***	0.0332***	0.0256***
	(0.0020)	(0.0020)	(0.0015)	(0.0020)	(0.0025)	(0.0012)	(0.0031)	(0.0025)
F–statistics†	134.08	134.08	134.08	134.08	135.27	135.27	135.27	135.27
N test takers	162,059	162,059	162,059	162,059	82,621	82,621	82,621	82,621
Classification	C				D			
Variables	Sum	Literature	History	Geography	Sum	Literature	Mathematics	Foreign language
Female sample	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
Elite number	0.0260***	0.0439***	0.0083***	0.0149***	0.0319***	0.0476***	0.0225***	0.0061***
	(0.0030)	(0.0043)	(0.0022)	(0.0025)	(0.0036)	(0.0050)	(0.0027)	(0.0017)
F–statistics†	123.44	123.44	123.44	123.44	115.41	115.41	115.41	115.41
N test takers	41,420	41,420	41,420	41,420	89,741	89,741	89,741	89,741
Male sample	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)
Elite number	0.0049**	0.0313***	–0.0095***	–0.0041*	0.0243***	0.0322***	0.0263***	–0.0054**
	(0.0023)	(0.0035)	(0.0027)	(0.0024)	(0.0032)	(0.0044)	(0.0035)	(0.0022)
F-statistics†	146.11	146.11	146.11	146.11	79.16	79.16	79.16	79.16
N test takers	9,301	9,301	9,301	9,301	21,288	21,288	21,288	21,288

Notes:

† *Kleibergen-Paap Wald rk F statistic* for testing H0: Weak identification test. Robust district clustered standard errors in parentheses (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$). Other controls were *no privilege*, the Kinh ethnic ratio, 2009 nighttime light intensity, 2009 population density, 1992 urban land ratio and 1992 cropland ratio, 1996 mean elevation, and distance to the coastline in every estimation.