

Online Appendix

Persistent Effect of Historical China's Permanent Forced Military Service System

Appendix 1: Intraclan Bargaining Model

We use a simple model to map all the concepts and hypothesized relationships. Inspired by the intrahousehold bargaining model by Bloch and Rao (2002), we establish an intraclan bargaining model to explain why a contract was necessary in a military clan.

Forced military clans engaged in long-distance and intergenerational transactions owing to the long distances between garrisons and hometowns and the succession of a soldier's son to his position. In the model, we use long-distance and intergenerational transactions as two exogenous conditions, that is, $d_2 > d_1$ and $s_2 > s_1$, where d represents distance, and s represents intergenerational transactions. The four steps are as follows:

(1) The representative clan chooses a blood relative to cooperate in the endeavor. The revenue is $R(Y_h, x_h, m_1(d_1, s_1))$, where m is the risk of the endeavor, and R is the revenue of the endeavor. Moreover, R is a monotonically decreasing function of m , and m is determined by the distance between the two parties and whether they are intergenerational. The marginal risk is increasing, that is, $\frac{\partial m_1}{\partial d} > 0$, $\frac{\partial^2 m_1}{\partial d^2} > 0$, $\frac{\partial m_1}{\partial s} > 0$, $\frac{\partial^2 m_1}{\partial s^2} > 0$.

(2) Risk increases after the establishment of the military system owing to the increase in distance $d_2 > d_1$ and intergenerational transactions $s_2 > s_1$. Thus, R decreases.

(3) Military clans begin to choose contract signing, in which the revenue is $R(Y_h, x_h, m_2(d_2, s_2), F)$. Two changes can be attributed to contract signing: a fixed cost must be paid at the beginning of the contract signing, and marginal risk decreases, that is, $\frac{\partial m}{\partial d} > 0$, $\frac{\partial^2 m}{\partial d^2} < 0$, $\frac{\partial m}{\partial s} > 0$, $\frac{\partial^2 m}{\partial s^2} < 0$, thus $m_2 < m_1$.

(4) After the fixed cost investment, the revenue of the succeeding endeavor is $R(Y_h, x_h, m_2(d_2, l_2, s_2))$, where $R(Y_h, x_h, m_2(d_2, s_2)) > R(Y_h, x_h, m_1(d_1, s_1))$.

We propose our hypothesis based on the simple model: the military clan system facilitated the emergence of contracting institutions.

Appendix 2: Data Collection Details

Modern contracting attitude

The indicator of modern contracting attitude is obtained from the 2010 CGSS. The indicator is a subjective measure based on the extent to which the respondent agrees with the following statement: “Doing business with friends and relatives requires a contract.” Agreement is indicated on a scale ranging from 1 (completely disagree) to 5 (completely agree). The 2010 CGSS does not disclose information on the respondents’ prefecture-level origins. Thus, we infer the information from the 2012 and 2013 CGSS from the respondents’ answers to the following items: “Your mother’s primary residence at birth was - city + county/district” and “When did you change your household registration to the local area?” For those who answered “local since birth” to the two questions, we infer the prefecture-level city to which their “s42” address code belongs and match it with the data from the 2010 CGSS.

Historical contracting culture

We use the indicators from the “Report on Investigation of Civil Habits” (Ministry of Justice and Administration of the former Nanjing National Government, 2005). The “Report on Investigation of Civil Habits” is based on local civil and commercial customs reported by counties during the late Qing and Republican periods. This survey was the first large-scale survey of civil and commercial customs conducted on a national scale. The report documents the civil and commercial customs of more than 500 counties during the late Qing and Republican periods. Specifically, a region was considered to have effective contracting institutions if it had “contracting” customs for commercial transactions, such as buying and selling land and houses, pawning, tenancy, renting, and lending. The variable takes the value of 1 if such customs existed, and 0 otherwise.

Proportion of military clans during the Ming dynasty

The data on military clans during the Ming dynasty are from Cao(2000) and local chronicles of each region, which covered 165 prefecture-level cities.

Control variables: city size

City size is taken from Rozman (1974), who classified city size during the Qing dynasty into eight classes. The first class is the capital (urban population of 300,000 and above; Beijing), the second class is the regional center (urban population of 70,000–300,000, e.g.,

Nanjing and Wuhan), the third class is the seat of the provincial government (urban population of 30,000–70,000), the fourth class is the seat of the prefectural government (urban population of 12,000–30,000), the fifth class is the seat of the county government (urban population of 3,000–12,000), the sixth level is the municipal trading center (urban population less than 3,000), the seventh class is the bazaar, and the rest is under the eighth class.

Appendix 3: Impact of Proportion of Military Families in Garrison Towns

We argue that the proportion of military families in garrison towns has a weak impact on the contemporary contracting attitude, because first, military families in garrison towns are confined to the garrison and generally not integrated with the local people (Gu, 2012; Mao, 2018). Second, compared with the nonmilitary members of military clans in their hometown, the military members in garrison towns accounted for a much lower proportion of the population, with the former accounting for 10%–20% and the latter accounting for only 2.6% (Cao, 2000; Mao, 2018). Therefore, the proportion of military families in garrison towns has a weak impact on the local contracting attitude.

We add the proportion of military families in garrison towns as a control variable and obtain the data from Cao (2000). The baseline results remain robust, and the impact of the military families in the garrison towns is insignificant.

Table A1. Addition of military families in garrison towns as a control

	(1)	(2)
	Modern contracting attitude	Historical contracting culture
Proportion of military clans	2.025*** (0.524)	1.794*** (0.455)
Proportion of soldiers	-1.166*** (0.266)	0.734 (0.621)
Other controls	Y	Y
Provincial fixed effects	Y	Y
Standard error clustered at prefecture level	Y	
Adjusted R ²	0.092	0.280
Observations	4308	111

Note: The dependent variable in column 1 is modern contracting attitude, and that in column 2 is historical contracting culture. In column 1, the standard errors in parentheses are clustered at the prefecture level; Y denotes control; robust standard errors are in parentheses; *, **, and *** represent significance at 10%, 5%, and 1%, respectively.

Appendix 4: Exclusion of Northern Prefectures where Han and Nomadic Peoples were Frequently at War

We further consider whether warfare can affect modern contracting institutions through cultural and economic conditions, because previous studies argued that warfare can shape culture and affect economic performance (Gallegos and Gutierrez, 2011; Mattina, 2017). To address this concern, we exclude the northern prefectures where the Han and nomadic peoples were frequently at war (Bai and Kung, 2014), and the estimates change slightly.

Table A2. Exclusion of northern prefectures

	(1)	(2)
	Modern contracting attitude	Historical contracting culture
Proportion of military clans	2.049*** (0.725)	2.591*** (0.662)
Individual characteristic variables	Y	
Prefectural city characteristic variables	Y	Y
Provincial fixed effects	Y	Y
Clustered standard errors	Y	
Adjusted R ²	0.087	0.257
Observations	3118	85

Note: The dependent variable in column 1 is at the individual level, and that in column 2 is at the prefecture level; in column 1, we control for individual characteristics and prefectural city characteristics; standard errors in parentheses are clustered at the prefecture level; in column 2, we control for prefectural city characteristics; standard errors need not be clustered; Y denotes control; robust standard errors are in parentheses; *, **, and *** represent significance at 10%, 5%, and 1%, respectively

Appendix 5: Contracting can Facilitate Exchange with Strangers

If contracting can facilitate exchange with strangers, then an increase in exchanges between individuals and strangers should be observed in regions with a high proportion of military clans. Furthermore, productivity would increase if exchanging with acquaintances is not accompanied by risks. We obtain the data on transactions with strangers from the China Family Panel Studies from the individual-level question “Was the business introduced by an acquaintance, a stranger, or no one?” We calculate the total factor productivity using the prevalent method (Chari et al., 2017; Ayerst et al., 2018). The information is at the prefectural level, and the empirical results are shown in Table A3. Consistent with our prediction, we observe that in regions with a high proportion of military clans, the number of individuals who traded with strangers is high and probability increases.

Table A3. Exchange with strangers and productivity

	(1)	(2)
	Exchange with Strangers	Total Factor Productivity
Proportion of military clans	0.891*** (0.210)	2.167*** (0.449)
Individual characteristic variables	Y	
Prefectural city characteristic variables	Y	Y
Provincial fixed effects	Y	Y
Clustered standard errors	Y	
Adjusted R ²	0.115	0.509
Observations	955	87

Note: In column 1, the dependent variable is at the individual level; we control for individual characteristics and prefectural city characteristics; standard errors in parentheses are clustered at the prefecture level; in column 2, the dependent variable is at the prefecture level; we control for prefectural city characteristics; standard errors in parentheses are not clustered at the prefecture level; Y denotes control; robust standard errors are in parentheses; *, **, and *** represent significance at 10%, 5%, and 1%, respectively