

Once a Slave? The Slave Trade and Military Formation under Colonialism

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Abstract

This paper explores the origins of the African colonial military's ethnic composition. I argue that colonial powers believed ethnic groups in regions heavily affected by the slave trade were 'martial races,' and because of this stereotype, certain ethnic groups affected by the slave trade were more likely to be recruited into the colonial military. The paper tests the argument with the ethnicity-level slave trade data and the recruitment records from the *Tirailleurs Sénégalais* in colonial French West Africa. Using various specifications, including instrumental variable estimates and spatial lags, an analysis of the ethnicity-level recruitment quota provides evidence consistent with the theory. The findings in this study help us better understand the formation of the indigenous military in the former colonies and the political effects of the slave trade.

1 Introduction

What explains the ethnic composition of the military? Scholars have found that ethnic representation in the military influences inter-ethnic cooperation (Samii 2013), performance in the battlefield (Lyall 2020), the occurrence of coups and civil wars (Ejiogu 2007; Furrivall 2014). Given this importance, however, the origins of ethnic representation in the military have been surprisingly understudied. Especially the creation of the military under colonialism has been largely overlooked in the existing literature. This is surprising since

the colonial military laid the foundation for the modern military in many newly independent states, let alone their roles in major battlefields like World War I and II. In this paper, I investigate under what conditions the colonial military was formed and what determined its ethnic composition.

I argue that colonial governments predominantly recruited rank-and-file from certain ethnic groups previously exposed to the slave trade. The slave trade increased the size and number of military conflicts, often called the “gun-slave cycle” or “iron-slave cycle” (Nunn 2008; Nunn and Wantchekon 2011; Whatley 2018; Lovejoy 2011; Hawthorne 1999), generating regional variation of conflict exposure. The history of ethnic groups’ involvement in military conflicts provided information to the colonial government on which ethnic groups would provide more qualified soldiers for military service. Given that the slave trade in the past influenced the colonial government’s view on which ethnic groups may possess martial traits, ethnic groups most affected by the slave trade were more likely to be recruited into the colonial military. Therefore, the slave trade shapes the pattern of colonial military recruitment.

I test this argument with the ethnicity-level slave trade data collected by Nunn and Wantchekon (2011) and colonial military recruitment data from *the Tirailleurs Sénégalais* in French West Africa (FWA) (Echenberg 1991). A cross-sectional regression analysis controlling for observable confounders provides supportive evidence for the argument. Further addressing endogeneity between the slave trade and colonial military recruitment, I instrument the location of the slave supply with the distances to the location where slaves were demanded. The results provide additional evidence that the colonial governments recruited soldiers from the ethnic groups targeted by the slave trade. Lastly, I provide evidence that the finding results from the government’s preference for recruiting from martial races rather than the prior practice of purchasing slaves directly from the market.

By studying the colonial military, this paper makes the following scholarly contributions. First, the study contributes to the literature on military formation by exploring the cases

of colonial troops. The colonial context allows examining how states build armies inside the domestic jurisdiction, not necessarily restrained by the political cost of recruiting soldiers from the metropole. In addition, studying the colonial military helps understand the origins of the military in newly independent states. In many cases, the colonial military laid a foundation for the new state's national army (Asal, Conrad and Toronto 2017; Margulies 2018) and often shaped the ethnic composition of a new military (Parsons 1999; Olusanya 1968; Ejiogu 2007). Therefore, this study helps identify the root causes of various kinds of political instability raised in newly independent states, including coups, civil wars, ethnic conflicts, and nationalist movements (Ejiogu 2007; Furnivall 2014; Samii 2013; Yi 2021) as well as the military's performance in war (Lyall 2020).

This study also has important implications for our understanding of the effects of the slave trade. Most existing studies have focused on the socio-economic effects of the slave trade, for instance, on economic development (Nunn 2008; Nunn and Wantchekon 2011; Pierce and Snyder 2018), social stratification (Whatley 2012; Rönnbäck 2015; Obikili 2016*b*; Teso 2019), and literacy rates (Obikili 2016*a*). By exploring how the slave trade influenced military formation and state-building, this work adds to a growing field of research that examines the political effects of the slave trade (Whatley 2012, 2018; Obikili 2016*b*).

The paper proceeds by discussing the theoretical argument on how the slave trade shaped the recruitment pattern in the colonial military. The subsequent section presents the empirical strategy and data for testing the theory. Next, I provide results from the cross-sectional regression of colonial military recruitment and instrumental variable analysis. The following section tests an alternative mechanism that could potentially explain the positive association between the slave trade and military recruitment. Lastly, the paper concludes.

2 Theoretical Argument: the Slave Trade, Conflicts, and Colonial Military Formation

I identify a two-stage process that links the history of the slave trade to colonial military formation. I argue that the slave trade increased the size and number of military conflicts and raids in certain areas, consequently affecting the colonial government's view on which ethnic groups would provide the most desirable soldiers.

2.1 The Slave Trade and Military Conflicts

First of all, I argue that the past history of the slave trade influences pre-colonial military conflicts. Previous studies suggested how the slave trade can raise the number of pre-colonial military conflicts, at least in two ways. First, the slave trade increased the supply of weaponry, facilitating the indigenous ruler's military conquests. In exchange for slaves, African merchants and rulers imported weaponry, including horses, firearms, and chainmail (Lovejoy 2011, p.107). The weapons imported to Africa strengthened indigenous rulers and raised the efficiency of using their military power, which increased the number and intensity of conflicts.¹

For instance, the trans-Atlantic slave trade played a key role in a 'gun revolution,' providing large amounts of firearms to coastal African kingdoms and increasing the number and size of military conflicts (Stapleton 2013). Before the slave trade and import of firearms, the local kingdoms had often operated a small number of professional warriors trained in sword-to-sword combats. The new technology led to a change in military organization, and indigenous states, especially Akans, employed units of hundreds of musketeers (Stapleton 2013, p.92). Some stronger powers could build an army with some semi-professional musketeers and a large number of conscripts. For example, Denkyira, the first state importing European firearms in the mid-seventeenth century among the Akans, was able to conquer its neighboring states and expand the territory (McCaskie 2007). McCaskie reports that "it was only in the last 15 or 16 years that Denkyira, until then a small, thinly populated place,

¹Curtin called this pattern as a "political model" of enslavement (Curtin et al. 1975).

had so improved in power through warfare” (McCaskie 2007, p.11). Other states, including Akwamu and Akyem, followed a similar path and conquered smaller neighboring entities (McCaskie 2007, p.20).

Also, the slave trade increased the demand for military conflicts and raids. By exporting slaves to European merchants, indigenous elites could earn revenue and pay a debt. Warfare and raids offered an opportunity to produce slaves by capturing enemy soldiers and civilians. In some cases, European merchants were directly involved in enslavement by colluding with some African elites on seizing people for sale, instigating more military conflicts to capture war prisoners. Thornton illustrates several instances where European factors incited conflicts either through pressuring or lobbying local rulers, including the Moors and the King of Kajoor’s attack on Waalo (Thornton 1999, p.129).² Furthermore, since the slave trade was lucrative for indigenous rulers, the control of coastal trade routes became another source of military conflicts in the region (Stapleton 2013, p.85). Warfare and raids by smaller raiders and bandits were also widespread (Thornton 1999, p.130).³

2.2 The Image of Martial Races and Colonial Military Formation

The slave trade created regional variation in the size and number of military conflicts by increasing both the demand and supply for warfare. I further argue that the past, mostly pre-colonial, conflicts provided information to colonial governments on where they could selectively recruit from. The history of conflicts is taken as an empirical ground for the prevailing ideology of ‘martial races,’ which had framed the British and French military recruitment strategy in the colonial periods (Streets 2017). Colonial governments viewed certain ethnic groups with prior history of conflicts as warlike people and believed that recruiting more soldiers from such groups would improve the quality of indigenous armies. In particular, selective recruitment from martial races, in theory, would build a stronger army

²As opposed to the political model, Curtin called it a “economic model” of enslavement (Curtin et al. 1975).

³Nunn and Wantchekon (2011) points out this smaller scale of violence, including raids and abduction, was the origin of mistrust in African society today.

against foreign invasions and also a loyal servant against the internal threats from rebellion and independence movements. Therefore, the ethnic composition of the colonial military has been shaped by the history of conflicts and hence, that of the slave trade.

Why did colonial powers selectively recruit from certain ethnic groups? I argue that selective recruitment was a solution to the principal-agent problem in civil-military relations. In this context, civilian leaders want their military to be strong enough to protect against external threats. However, strengthening the military, at the same time, increases the risk of coups and civil wars since it reduces the chance of survival when they occur (Feaver 1996, 2009). Feaver succinctly summarizes the problem that “we create an institution of violence to protect us, but then we fear the very institution we created for protection” (Feaver 1996, p.150).

This problem — building stronger military increases the cost of controlling it — was acute in military recruitment in colonies. In particular, colonial powers worried that the colonial military might join rebellion and independence movements from the indigenous population. In Burma, for instance, the British government excluded the major ethnic group — the Burmese — from the *Burma Rifles* and recruited instead from other smaller ethnic groups.⁴ Callahan notes that “this policy came out of British concerns arming and training Burmans who might someday be swept up in the growing anti-colonial nationalist movement” (Callahan 2005, p.35).

Recruiting from ‘martial races’ addressed both external and internal security problems. Streets defines the ideology of martial races as the belief that “some groups of men are biologically or culturally predisposed to the arts of war” (Streets 2017, p.1). The concept was initially developed in Britain, citing the bravery and loyalty of Scottish Highlanders in the Seven Years’ War and of the Sikhs and Gurkhas in the Sepoy Rebellion (Streets

⁴Furnivall describes that it would be imprudent for the British to recruit the Burmese. He notes that “there could be little reliance on troops raised from among a people with no divisions of caste but united in religion, race and national sentiment with the king and their kinsfolk just across the border, still waiting an opportunity to wipe out defeat in another trial of strength” (Furnivall 2014, p.178).

2017, p.8). Their military successes led the British to identify martial races in other areas of the colonial orbit and to advocate preferential recruitment from certain ethnic groups. Similarly, in France, General Charles Mangin, who laid out the French military recruitment policy in Africa, looked for ‘les qualités guerrières’ or soldiers’ capabilities in combat, such as endurance, intelligence, and courage on the battlefield (Mangin 1911, p.83). In theory, selective recruitment from martial races would strengthen the military, addressing the problem of external security.

Furthermore, selective recruitment from martial races provided a solution to the problem of loyalty, as it implants the idea that the selected groups are naturally distinct from other indigenous populations. Granting the status of martial groups encouraged the selected groups to collaborate with the colonial government and reduced the emotional burden of fighting against their own people (Parsons 1999, p.55). By recruiting soldiers from the martial tribes and elevating their status, the colonial governments could reduce the risk of revolts associated with arming mainstream population.⁵ In fact, loyalty was a key component in the concept of martial races from the start; the Gurkhas and Sikhs were praised for their allegiance to the British in the Sepoy Rebellion (MacMunn 1979; Streets 2017).

Then, how did colonial governments identify martial races? As in the Sikhs and Gurkhas cases, the prior history of military conflicts directly influenced the colonial government’s understanding of which ethnic groups would likely possess martial traits (Streets 2017, pp. 52-86). In FWA, for instance, the Baribas and Mossi people were acclaimed for their history of offensive warfare, and Mangin noted that those groups would provide resistant and disciplined soldiers. Similarly, Mangin rated the Zarma people highly in terms of their potential for future recruitment by citing their fights near the Lake Chad (Mangin 1911, p.87-88). He also viewed that the *Peuples Voltaïque* can be a good recruitment pool, given that they successfully defended against foreign invasions (Mangin 1911, p.86).

⁵Creating the internal division in indigenous population was similar to the idea of promoting the inter-ethnic conflicts inside colonies, so-called ‘divide and rule’ (Furnivall 2014; Cunningham 2011).

In sum, the slave trade generated the regional variation in military conflicts, which contributed to how colonial governments understood native populations as recruitment sources for the military. The government favored recruiting from martial races since it helped address the principal-agent problem in the colonial government–indigenous military relations. Through this process, the slave trade shaped the ethnic composition of the colonial military.

Hypothesis 1: The colonial military recruited more soldiers from the ethnic groups exposed to the slave trade.

3 Empirical strategy and results

3.1 Data

3.1.1 Outcome variable

To investigate the hypothesis, I use the historical ethnic group-level data in Africa, generated by Murdock (1959) and further digitized by Nunn (2008). The outcome variable is the ratio of soldiers each ethnic group provided to the colonial military to the group’s total population. I use the recruitment records in the Tirailleurs Sénégalais from Echenberg (1991), which provides the district-level (cercle) recruitment quota in FWA.⁶

Using Echenberg’s data, I generated an ethnicity-level recruitment measure with the following procedures. First, I calculated the size of ethnic groups in each administrative district by mapping the historical space of each ethnic group lived (Murdock 1959) onto the district-level map of FWA in 1925 (Huillery 2009).⁷ Then, the district-level recruitment quota and the number of the population are weighted by each ethnic group’s size in a district

⁶In the original data, Echenberg constructs recruitment quota by normalizing that the sum of the quota equals 10,000 in FWA. I weighted the measure so that its sum equals 50,000, reflecting the average size of the Tirailleurs Sénégalais in the 1920s. Doing so captures the exact size of soldiers serving in the colonial military, which helps interpret the substantive effects.

⁷Huillery (2009) digitized the administrative boundary of FWA in 1925, except Dahomey, which is Benin today.

and summed at the ethnic group level. Formally, the recruitment quota of each ethnic group i is generated by the following:

$$Recruitment_i = \sum_{j=1}^n \alpha_{ij} X_j / \sum_{j=1}^n \alpha_{ij} Y_j$$

where n is the number of districts lived by ethnic group i ; α_{ij} refers to each ethnic group i 's size in the district j ; and X_j and Y_j refer to the recruitment quota and the number of population in the district j .⁸ This measure captures how disproportionately the colonial government relied on certain ethnic groups holding the size of the recruitment pool.⁹

The upper panels in Figure 1 show that the weighted measure reasonably captures the original variation of the recruitment quota in FWA. Figure 1a shows the variation in the recruitment quota, which is normalized by the number of population at the cercle level, and Figure 1b shows the same attribute at the ethnicity level. Both figures display that the colonial governments heavily recruited soldiers from the regions near the western coast, including Dakar and Casamance. Yet, the figures also show that the colonial governments recruited lots of soldiers from the hinterland as well, notably in the Bambara and Tombouctou regions in modern-day Mali. The number of observations slightly increases in the ethnicity level data, from 101 to 123.

3.1.2 Explanatory variable

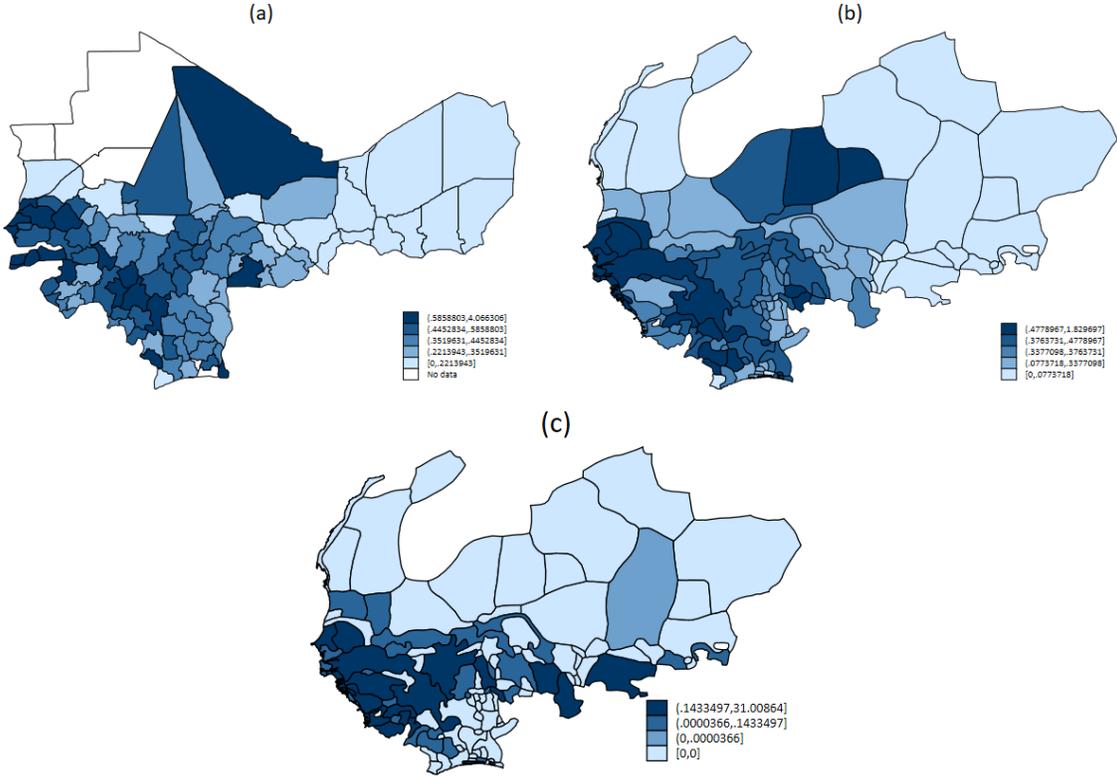
The explanatory variable is the number of slaves taken from each ethnic group in the trans-Atlantic slave trade normalized by land area (Nunn 2008; Nunn and Wantchekon 2011). I only use the data of the trans-Atlantic slave trade, given that the number of slaves taken through the Indian Ocean route is zero in the area of FWA. The latest slave trade is recorded in 1897, which assures that the exposure to the slave trade preceded colonial military recruitment with a gap of about 20 or more years. Figure 1c displays the overall pattern of

⁸ α_{ij} is normalized by the ratio to the total size of the district j .

⁹Alternatively, I report the result using the share of total recruits coming from a ethnicity i as an alternative measure of military recruitment in the Appendix A1.

the slave trade in FWA. Slaves were mostly taken from the areas close to the southwestern coast, which manifests that the transaction costs for exporting slaves were lower in the coastal regions than in the hinterland.

Figure 1: Overview: Colonial Military Recruitment and the Trans-Atlantic Slave Trade in FWA



Note: Figure 1a and 1b show the variation in the recruitment quota normalized by the number of population at the cercle and ethnic group level each. The polygons in a darker color represent the regions that provided more soldiers relative to the population. The attributes are divided into five classes. Figure 1c shows the number of slaves exported through the trans-Atlantic trade, normalized by land area.

3.2 Identification strategy and findings

3.2.1 Controlling for observables

The slave trade is likely to be assigned to ethnic groups in a non-random manner. For instance, Fenske (2014) and Fenske and Kala (2015) show that climate is an important factor;

Africans reduced the slave exports during the cold years. Military conflicts and underdevelopment could also be endogenous to the slave exports (Whatley 2018). To reduce the chance that any findings on the relationship are spurious, I use two strategies. The first is to control for observable confounders. Following the former studies, I control for the geographic factors affecting the enslaving and shipping costs (Nunn 2008; Nunn and Wantchekon 2011; Whatley and Gillezeau 2011). These geographical factors include elevation, longitude, latitude, precipitation, sea contiguity, presence of an important river, and distance from the coast.¹⁰ I also control for cities and ports of Dakar, Saint Louis, Bais du Levrier, Conakry, Bafoulabe, and Gao. Also, for the subset of units with available data, I control for additional pre-colonial factors, including jurisdictional hierarchy, water availability, ecological and agriculture suitability (Michalopoulos and Papaioannou 2013). The inclusion of pre-colonial jurisdictional hierarchy addresses a potential concern that the slave export might have been easier in the areas where states are underdeveloped. Lastly, in some specifications, I account for the geographical clustering by using a spatial lag both for colonial military recruitment and the slave trade. The discussion above leads me to construct the following cross-sectional linear regression analysis:

$$\ln(\textit{Recruitment}_i) = \alpha + \beta \ln(\textit{Slave_trade}_i) + \gamma X_i + \epsilon$$

where i refer to the unit of an ethnic group. *Recruitment* is the ethnicity-level recruitment quota normalized by the total population of each ethnic group. *Slave_trade* is the main explanatory variable of interest, which accounts for the number of slaves exported from each ethnic group normalized by its land area. X is the covariates varying in ethnic groups, and ϵ denotes the error term. Throughout the specifications, I use the ordinary least square (OLS) model and the generalized spatial two-stage least squares (GS2SLS) to account for spatial clustering in colonial military recruitment and the slave trade.

Table 1 provides evidence for the relationship between the slave trade and the colonial

¹⁰I use the mean value of district-level data provided by Huillery (2009).

Table 1: Regression Analysis of Military Recruitment in FWA

	(1)	(2)	(3)	(4)	(5)	(6)
ln(Slaves per land area)	0.121*** (0.0299)	0.101*** (0.0244)	0.0926*** (0.0250)	0.118*** (0.0294)	0.103*** (0.0234)	0.0946*** (0.0236)
Local resistance			0.00113 (0.00134)			0.00165 (0.00144)
Year of colonial conquest			-0.00536* (0.00281)			-0.00551** (0.00265)
European trade counter			0.00287 (0.0519)			-0.00471 (0.0496)
Trade taxes per capita			0.211*** (0.0692)			0.221*** (0.0679)
Geography	No	Yes	Yes	No	Yes	Yes
Cities and Ports	No	Yes	Yes	No	Yes	Yes
Spatial Weights	No	No	No	Yes	Yes	Yes
Observations	123	123	123	123	123	123
R^2	0.119	0.587	0.655	0.160	0.604	0.660

Standard errors in parentheses. Constants are suppressed in the table.

Pseudo- R^2 s are reported for the spatial models.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Note: Generalized spatial two-stage least squares (GS2SLS) are used for the spatial specifications. The models assumed the spatial spillovers both for the recruitment and the slave trade (Spatial Durbin Model). The contiguity weighting matrix is used.

military recruitment pattern in FWA. Model 1-3 use the OLS, whereas Model 4-6 account for spatial spillovers in the recruitment and slave exports. Model 1 and 4 report the association between the slave trade and military recruitment without controls. Model 2 and 5 control for the geographical factors, including latitude, longitude, altitude, precipitation, sea contiguity, presence of an important river, distance from the coast, and the location of ports and cities of FWA.¹¹ Model 3 and 6 further include some factors that may influence the colonial recruitment pattern, although they might have also influenced by the slave trade. Throughout the specifications, the coefficients for the slave trade are positive and statistically significant at the 99% level.

In Table 2, I further control for potential confounders that may have affected the slave

¹¹The ports and cities include Dakar, Saint Louis, Bais du Levrier, Conakry, Bafoulabe, and Gao.

Table 2: Regression Analysis of Military Recruitment in FWA

	(1)	(2)	(3)	(4)	(5)	(6)
ln(Slaves per land area)	0.0847** (0.0331)	0.0836** (0.0335)	0.0638** (0.0295)	0.0863*** (0.0302)	0.0848*** (0.0304)	0.0686** (0.0268)
Jurisdictional hierarchy	-0.0626** (0.0246)	-0.0654** (0.0266)	-0.0280 (0.0228)	-0.0285 (0.0269)	-0.0308 (0.0279)	-0.0200 (0.0209)
Geography	No	No	Yes	No	No	Yes
Cities and Ports	No	Yes	Yes	No	Yes	Yes
Spatial Weights	No	No	No	Yes	Yes	Yes
Observations	75	75	75	75	75	75
R^2	0.177	0.178	0.625	0.228	0.231	0.629

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: Additional geographic factors include water area of a group in 1000's of km, ecological suitability index (malaria), land suitability for agriculture.

trade. In addition to the geographic factors in Table 1, I include more geographic factors, which are only available for 75 ethnic groups in the FWA area. In particular, the models control for the level of the pre-colonial jurisdictional hierarchy, addressing the possibility that ethnic groups who attained strong political and military power in the pre-colonial period were able to resist both enslavement and the colonial military (Westwood 2016, p.1).¹² Similar to the results in Table 1, Model 1-3 report the OLS regression outputs, and Model 4-6 account for the spatial clustering. The results remain robust to these specifications, which provides supportive evidence to *Hypothesis 1* that the slave trade affected which ethnic groups were more likely to serve in the colonial military.

The estimated effects on colonial military recruitment are quite substantial. Based on Model 2 in Table 1, the finding suggests that a 10% increase in $\ln(\text{slaves per land area})$ is associated with a 3% increase in the $\ln(\text{soldiers per population})$. To illustrate, for an ethnic group of 100,000 populations that initially contributed the mean level of soldiers (about

¹²Michalopoulos and Papaioannou (2013) shows that the pre-colonial jurisdictional hierarchy is strongly associated with the level of economic development in Africa today.

1,200) to FWA, one standard deviation increase in the slave export variable raises the number of soldiers to about 2,000, which is a 66% increase in the number of soldiers.

3.2.2 IV estimates

To further address potential endogeneity between the slave trade and colonial military recruitment, I use an instrumental variable. In particular, the strategy aims to deal with another possible route of the gun-slave cycle; slaves could have been taken from conflict-prone areas, and ethnic groups residing in such regions naturally earned a martial reputation without exposure to the slave trade. If the assumptions are satisfied, an instrumental variable retrieves an unbiased estimate of the slave trade's effect, even if the circular relationship exists between military conflicts and the slave trade. The previous studies examining the impact of the slave trade commonly used the distances from the locations where ethnic groups resided to the sites where slaves were demanded as an instrument (Nunn 2008).¹³ Following the estimation strategy by Nunn (2008), I use the distance from the living area of each ethnic group to the closest demand location for the ethnic groups on the western coast of Africa, which is Salvador, Brazil.

The first underlying assumption validating the instrument is that the location of demand might influence where they import slaves from, but the location of supply does not affect the location of demand. Nunn (2008) suggests that the instrument is historically valid since the plantation economies, such as the West Indies, looked for slaves from the western coast of Africa since the distance was relatively close. Hence, the location of demand influenced the location of supply. Nunn (2008) also shows that the reverse is not true since the location of demand is determined by its initial conditions for the plantation industry, including climate and soil suitability, and also natural resources. Where the labor would be imported cannot affect the inherent factors that determined the location of the demand for slaves (Nunn 2008, p.160).

¹³The location of slave demand includes Virginia, USA; Havana, Cuba; Haiti; Kingston, Jamaica; Dominica; Martinique; Guyana; Salvador, Brazil; and Rio de Janeiro, Brazil (Nunn 2008, p.160).

The second assumption is that the location of slave demand influences the colonial military recruitment only through slave exports. I argue that it is a reasonable assumption since the distance from the location of the demand for slaves to the locations of individual ethnic groups is unlikely to be correlated with the number of soldiers provided in the colonial military had it not been for the impact of the slave trade. A potential concern is that the distance from Salvador might be correlated with the distance to the coast, which could influence military formation through recruitment from the cities and ports in the coastal areas. Therefore, in some IV specifications, I control for the geographic factors, including the distance from the coast and the locations of cities and ports.

Table 3 reports the results from instrumental variable analyses. I use the natural log of the distance from Salvador, Brazil, to each ethnic group's living area as an instrument. Following the suggestions from Betz, Cook and Hollenbach (2018, 2020), I use the Spatial-2SLS (S-2SLS) to account for spatial dependence in the dependent variable. The first stage regression shows that the relationship between the instrument and the slave trade is negative, indicating that the number of slaves exported is lower as the distance from the location of demand is farther. The second stage results show that the effect of the slave trade remains positive and statistically significant at the 99% level, even after controlling for geographic factors. Under the assumption that the location of slave demand affects the colonial military recruitment exclusively through the number of slaves exported, the analysis provides further evidence for *Hypothesis 1*.

3.2.3 Slave Army or Martial Races

The theory suggests that preferential recruitment from martial races is the reason we observe the positive association between certain ethnic groups' exposure to the slave trade and their representation in the colonial military. Can there be any potential mechanism that produces this relationship?

Table 3: Instrumental Variable Regression Analysis

	(1)	(2)	(3)	(4)
Second stage: DV is $\ln(\text{Quota}/\text{pop.})$				
$\ln(\text{Slaves per land area})$	0.328*** (0.0697)	0.311*** (0.0640)	0.155*** (0.0534)	0.166*** (0.0513)
Geography	No	No	Yes	Yes
Cities and Ports	No	Yes	No	Yes
S-2SLS	Yes	Yes	Yes	Yes
Observations	123	123	123	123
First stage: DV is $\ln(\text{Slaves per land area})$				
$\ln(\text{Distance from Salvador})$	-1.178*** (0.288)	-1.168*** (0.291)	-5.296** (2.156)	-5.356** (2.167)
IV F-stat	16.661	16.080	6.031	6.107
Observations	123	123	123	123

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Note: The models assumed the spatial spillovers both for the recruitment and the error terms (Spatial Autocorrelation Model). IV F-stats are calculated with non-spatial regressions.

One alternative mechanism is the *rachet*, one of the recruitment practices in the early French colonial army purchasing slaves directly from their masters (Echenberg 1991, p.8). While Echenberg notes that the *rachet* slowly ceased due to the political atmosphere following the 1848 Revolution in France and the need for more professionalized soldiers in the era of Scramble for Africa, the path-dependence of recruitment practice might explain the correlation between the slave trade and the ethnic composition of colonial military.

The *rachet* mechanism focuses on the supply of slaves on the market at the time of military recruitment. It implies that the effects of the recent slave trade should be higher than the effects of the past trades because it is the recent trade that affects the market price of slaves at the time of recruitment, not the history of the slave trade. On the contrary, the martial races argument suggests that previous trades should also influence military recruitment because of their roles in generating military conflicts, which the colonial government relied on to identify martial groups.

Table 4: Regression Analysis of Military Recruitment in FWA

	(1)	(2)	(3)	(4)	(5)
ln(Exports in 1500s)	0.0947 (0.238)	0.0913 (0.239)	-0.0122 (0.203)	0.0630 (0.267)	-0.196 (0.223)
ln(Exports in 1600s)	0.619*** (0.207)	0.617*** (0.208)	0.439** (0.177)	0.682*** (0.194)	0.434*** (0.165)
ln(Exports in 1700s)	0.203*** (0.0681)	0.205*** (0.0684)	0.0860 (0.0571)	0.136** (0.0641)	0.0878* (0.0533)
ln(Exports in 1800s)	0.0376 (0.0568)	0.0409 (0.0573)	-0.0463 (0.0472)	0.0176 (0.0521)	-0.0571 (0.0435)
Geography	No	No	Yes	No	Yes
Cities and Ports	No	Yes	Yes	No	Yes
Spatial Weights	No	No	No	Yes	Yes
Observations	123	123	123	123	123
R^2	0.150	0.152	0.527	0.226	0.554

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

To evaluate the weights of these two mechanisms, the models in Table 4 differentiated the slave exports in the 16th-19th centuries, respectively. The results show that the slave trade in the 1600s and 1700s strongly influenced colonial military recruitment. On the contrary, the result is not consistent with the ratchet mechanism since the export during the 1800s does not significantly increase the chance of military recruitment. Instead, it shows that the slave trade in the past centuries explains colonial military recruitment, providing supportive evidence for the martial races argument.

4 Discussions and Conclusion

In this paper, I examined how the military was formed under colonialism. I argued that based on the racial stereotype, the colonial governments sought soldiers who would create an efficient and loyal army. I further argued that the trans-Atlantic slave trade influenced the martial image of ethnic groups by creating regional variation in armed conflicts. As a result, the colonial government recruited soldiers from the ethnic groups who experienced

the slave trade in the pre-colonial periods. The statistical analyses with various specifications, including spatial lags and IV estimates, provide evidence consistent with the theory. Furthermore, I suggest that the positive association between the slave trade and colonial military recruitment comes from the government's preference for recruiting from certain ethnic groups rather than directly purchasing slaves.

This study contributes to our understanding of state-building and military formation by exploring how the coercive force of state emerges under colonialism. While scholars acknowledged the importance of the issue, military formation under colonial rule was understudied so far. This study shows that military formation under colonialism also experienced a similar problem common in most civil-military relations nowadays. Colonial governments wanted to ensure the 'protection *by* and *from* the military' (Feaver 1996, p.154). In the colonial context, one such solution was preferential recruitment from martial races. While there is a little controversy about whether colonial governments favored recruiting from certain ethnic groups viewed as martial race, it does not imply that the strategy helped attain the goal of building a strong and loyal military. Rather, the concept was inherently self-contradictory. Sometimes, martial races referred to "the most advanced" people who experienced civilization (*Comite' D'Assistance aux Troupes Noires* 1917, p.21), but were also praised for "warrior instincts that remain extremely powerful in primitive races" (Lunn 1999, p.521). In reality, the idea of martial races was a complex social construction made up of the day-to-day experiences of the military officials, the ideology of racism, and the strategic calculation of relatively 'safe' groups that would not revolt against them. Then, it permeated to a general belief that some ethnic groups constitute an efficient and loyal army, which the colonial government wanted the most.

This paper also sheds light on the political effects of the slave trade. Earlier studies have shown that the slave trade affected economic development by increasing ethnic stratification and mistrust (Nunn and Wantchekon 2011; Whatley and Gillezeau 2011). This study highlights that the slave trade had directly influenced the political realm by determining the ethnic composition of the military. Furthermore, colonial military recruitment had a

lingering influence on the politics of a new independent state. Since the military was an instrumental player in post-independence politics, the mode of ethnic composition in the military heavily affected the likelihood of coups in new states (Ejiogu 2007). From this perspective, this paper provides evidence that modern political problems associated with new states' military can be further traced back to the era of the slave trade.

Lastly, while the paper focused on the military recruitment in FWA, the idea of recruiting from martial races is arguably weaker in the French military than, for instance, in the British army. The concept of martial races has been widely applied to the British colonies' military recruitment policy. Therefore, the French colonial recruitment can be thought of as one of the 'hard' cases for the theory. The influence of martial race doctrine may have been even more substantial in other areas under colonialism.

Table A1-1: Regression Analysis of Military Recruitment in FWA

	(1)	(2)	(3)	(4)	(5)	(6)
ln(Slaves per land area)	0.00746** (0.00286)	0.00958*** (0.00297)	0.00809*** (0.00303)	0.00773*** (0.00232)	0.00950*** (0.00243)	0.00855*** (0.00258)
Local resistance			-0.000641*** (0.000162)			-0.000157 (0.000164)
Year of colonial conquest			-0.000351 (0.000342)			0.0000383 (0.000309)
European trade counter			0.00770 (0.00631)			0.00464 (0.00543)
Trade taxes per capita			-0.00541 (0.00842)			0.00756 (0.00752)
Geography	No	Yes	Yes	No	Yes	Yes
Cities and Ports	No	Yes	Yes	No	Yes	Yes
Spatial Weights	No	No	No	Yes	Yes	Yes
Observations	123	123	123	123	123	123
R^2	0.053	0.283	0.399	0.258	0.377	0.391

Standard errors in parentheses. Constants are suppressed in the table.

Pseudo- R^2 s are reported for the spatial models.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Note: Generalized spatial two-stage least squares (GS2SLS) are used for the spatial specifications. The models assumed the spatial spillovers both for the recruitment and the slave trade (Spatial Durbin Model). The contiguity weighting matrix is used.

5 Appendix

A1. Alternative measures

Table A1-1 replicates Table 1 in the manuscript, using an alternative measure of military recruitment: each ethnic group's share of the total recruits in FWA. Not normalizing the outcome variable with the number of population, the measure captures the ethnic composition of the colonial military. The results provide supportive evidence to the claim that ethnic groups which had been exposed to the slave trade provided more soldiers to the military.

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