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

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Abstract

How was the colonial military formed? Exploring the cases overlooked from the literature of state formation, I argue that colonial powers believed ethnic groups in regions heavily affected by the slave trade were 'martial races,' and because of this stereotype, ethnic groups targeted 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 the 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

Why and how is the military force created? While previous studies acknowledged the importance of military formation given that it exemplifies "how the state relates to society" (Asal, Conrad and Toronto 2017, p.1457), our understanding remains incomplete. Especially, the creation of the military under colonialism has been largely overlooked from the existing literature. This is surprising given the colonial army's roles in the major battlefields like

World War I and II and its role in laying the foundation of the modern military in newly independent states. In this paper, I investigate how the colonial government recruited from the native population.

I argue that states predominantly recruited rank-and-file from ethnic groups previously exposed to the slave trade before. The slave trade increased the need and supply for self-defense and conquest by generating risky and unstable environments, often called the "gun-slave cycle" or "iron-slave cycle" (Nunn 2008; Nunn and Wantchekon 2011; Whatley 2018; Lovejoy 2011; Hawthorne 1999). Through this process, the slave trade differentiates how often certain ethnic groups engage in violent conflict. The pre-colonial conflicts, heightened by the slave trade, created the image of 'martial races' that the colonial governments regarded as more qualified for military service. Given that the slave trade in the past influences the colonial government's view on which ethnic groups may possess martial traits, the ethnic groups with a history of the slave trade were more likely to be recruited in 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 the colonial military recruitment data from *the Tirailleurs Sénégalais* in the colonial 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 of military formation by exploring the cases of the colonial troops, which are overlooked from the literature. The colonial context provides

an opportunity to examine 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 national military in newly independent states. In many cases, the colonial military was an important precursor to the new state's national army (Asal, Conrad and Toronto 2017; Margulies 2018) and determined the ethnic composition of a new military (Parsons 1999; Olusanya 1968; Ejiogu 2007). This has further importance since the ethnic composition of the military influenced various kinds of political instability raised in newly independent states, including coups, civil wars, and nationalist movements (Ejiogu 2007; Furnivall 2014; Yi 2021).

This study also has important implications for our understanding of the effects of the slave trade. The existing studies have demonstrated the long-term effects of the slave trade on economic development (Nunn 2008; Nunn and Wantchekon 2011; Pierce and Snyder 2018), social and ethnic 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 the research that examined the long-term effects of the slave trade on the political development in Africa (Whatley 2012, 2018; Obikili 2016*b*).

The paper proceeds by discussing the theoretical argument on how the slave trade affects 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 whether the slave trade influences military formation via the colonial government's idea of recruiting 'martial races' or its increased opportunity to purchase more slaves. Lastly, the paper concludes.

2 Theoretical Argument

2.1 The Image of Martial Races and Colonial Military Formation

How do the governments create the military forces? Scholars suggest two underlying yet often contradictory motives for forming a military. Civilian leaders want a strong military which can protect them from external threats. However, strengthening military also reduces their chance of survival if the military turns against the leaders, and it uses the coercive resources for rebellion, instead. Therefore, while civilian leaders need a military strong enough to defend the external threats, but they also want to control the military through some preventive measures. This is a long-standing principal-agent problem in the context of civil-military relations (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. Since the colonizers come from foreign soils, they believed that colonial subjects are more likely to turn against the government than the population in the metropole given the distinct ethnicity, culture, and the desire for a better political and economic opportunity. In Burma, for instance, the British excluded the major ethnic group — the Burmese — from the *Burma Rifles* and instead recruited from other smaller ethnic groups.[1] 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).

The colonial governments viewed that recruiting from 'martial races' could address both problems of external and internal security.[2] The General Charles Mangin, who laid out the

[1]Furnivall 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).

[2]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). As the word implies, the concept primarily

French military recruitment policy in Africa, illustrated which ethnic groups could be an ideal recruitment source from his point of view. One kind of characteristics he calls 'les qualités guerrières' refers to the soldiers' capabilities in combat, which would help achieve the goal of building a stronger army. These qualities claimed by Mangin included endurance, intelligence, and courage in the battlefield (Mangin 1911, p.83). Often, ethnic groups who had a history of pre-colonial military conflicts were highly regarded as having warlike characteristics. For instance, Mangin viewed that the *Peuples Voltaïque* can be a good source of recruitment given their prior history that they were invaded, but resisted and successfully preserved their independence, thanks to their warlike qualities (Mangin 1911, p.86).

Furthermore, the martial race theory also provided a solution to the problem of loyalty, as it implants the idea that the selected tribes are distinguished from the mainstream population. It eased the difficulty of recruited soldiers in 'fight their own kith and kin' and encouraged them to collaborate with the colonial governments (Parsons 1999, p.55). This is similar to the idea of promoting the inter-ethnic conflicts inside colonies, so-called 'divide and rule' (Furnivall 2014; Cunningham 2011). By recruiting soldiers from the martial tribes and empowering them, the colonial governments could reduce the risk of revolt associated with arming the mainstream population. For instance, the British policymakers and military officers elevated the Gurkhas and Sikhs as martial races, who remained royal and fought with the British in the Sepoy Rebellion in India (MacMunn 1979; Streets 2017).

While there is a little controversy in whether the colonial governments favored recruiting from certain ethnic groups viewed as martial race, it does not imply that this view had any empirical ground. 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). Notably, the idea of martial races, in reality, was a complex social construction made up of the day-to-day

points to certain ethnic groups capable of effective fighting and excludes the other ethnic groups with 'non-martial' traits.

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.

2.2 Effect of the Slave Trade

I further argue that the past history of the slave trade influences pre-colonial military conflicts, and hence, the martial reputation of certain ethnic groups. Previous studies identified how the slave trade raised the number of the 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. As an exchange of slaves, the 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, increasing the number and intensity of conflicts.[3]

Also, the slave trade increased the demand for military conflicts and raids; the indigenous elites can earn revenue and pay a debt by selling slaves to the European merchants. In some cases, the 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 the 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).[4] Similarly, smaller raiders and bandits conducted raids and seized people to sell (Thornton 1999, p.130).[5]

By generating armed conflicts in the pre-colonial era, the slave trade shaped the colonial

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

[4]As opposed to the political model, Curtin called it a "economic model" of enslavement (Curtin et al. 1975).

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

government's understanding on martial qualities of ethnic groups. As in the British examples of recruiting from Sikhs and Gurkhas, 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). Especially in FWA, Mangin noted ethnic groups' history of engaging in the pre-colonial military conflicts to support his claim on which ethnic groups hold martial qualities. For instance, the Baribas and Mossi people were acclaimed for their history of offensive warfare, and Mangin noted that the ethnic groups provide resistant and disciplined soldiers. Similarly, Mangin rates 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).

In sum, the slave trade contributed to specific ethnic groups forming their martial reputation for the colonial governments. For the colonial governments, the theory of martial race leads them to see those ethnic groups as a solution to the principal-agent problem in forming a military. While the theory of the supposed racial hierarchy was empirically groundless and self-contradictory, the colonial government favored recruiting from the martial groups with a belief that they are reliable and make fierce soldiers against the enemy. As a result, the slave trade influenced how the native population in Africa constitutes the colonial military forces.

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 the ethnicity-level recruitment measure with the following procedures. First, I calculated the size of ethnic groups in each administrative districts 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 recruitment quota and the number of population at the district level are weighted by each ethnic group's size in a district and summed at an 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]

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

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

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

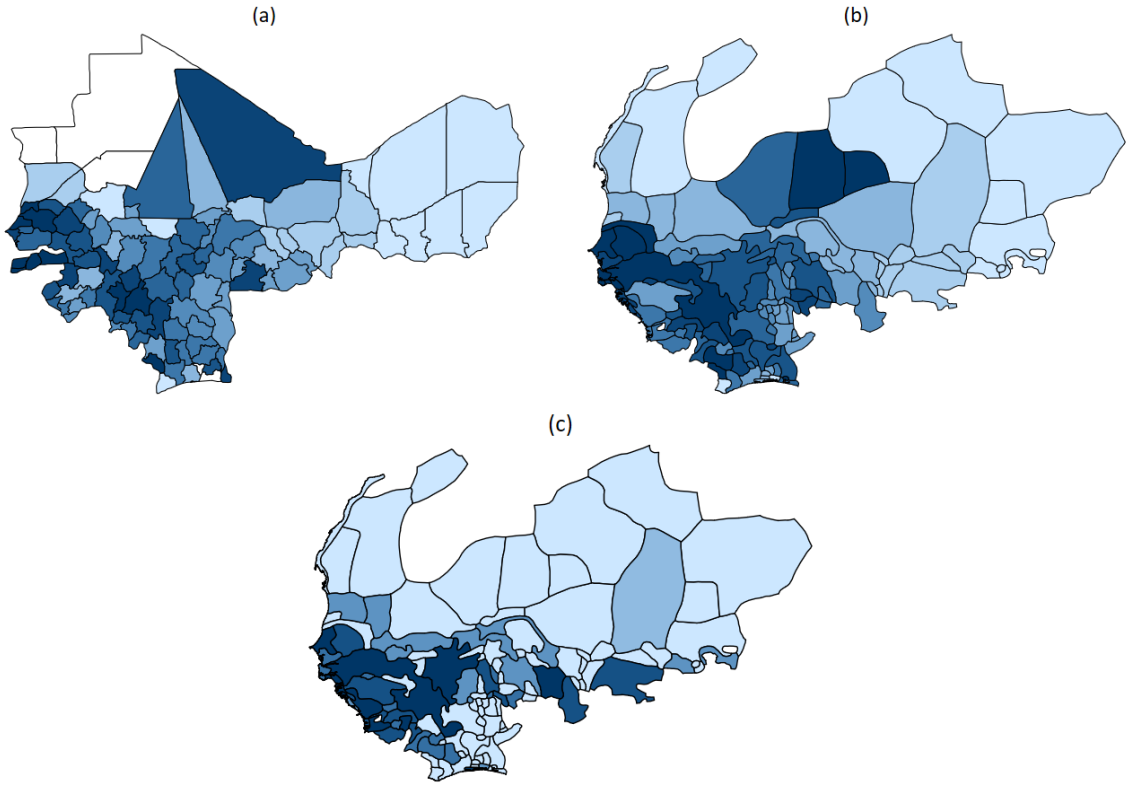
[9] Alternatively, I report the result using the share of total recruits coming from a ethnicity i as an alternative measure of military recruitment in the Appendix A1.

The upper panels in Figure 1 show that the weighted measure reasonably captures the original variation of 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 slave trade preceded colonial military recruitment with a gap of about 20 or more years. Figure 1c displays the overall pattern of the slave trade in FWA. The slaves were mostly taken from the areas close to the southwestern coast, which evinces 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 ten classes. Figure 1c shows the number of slaves exported, which is normalized by land area through the trans-Atlantic trade.

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:

$$ln(Recruitment_i) = \alpha + \beta ln(Slave\_trade_i) + \gamma X_i + \epsilon$$

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 on the relationship between the slave trade and the colonial 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,

[10] I 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***	0.101***	0.0926***	0.118***	0.103***	0.0946***
	(0.0299)	(0.0244)	(0.0250)	(0.0294)	(0.0234)	(0.0236)
Local resistance			0.00113			0.00165
			(0.00134)			(0.00144)
Year of colonial conquest			-0.00536*			-0.00551**
			(0.00281)			(0.00265)
European trade counter			0.00287			-0.00471
			(0.0519)			(0.0496)
Trade taxes per capita			0.211***			0.221***
			(0.0692)			(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^2s 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.

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 trade. In addition to the geographic factors included in Table 1, I include more geographic factors, which are only available for 75 ethnic groups in 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

[11]The 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**	0.0836**	0.0638**	0.0863***	0.0848***	0.0686**
	(0.0331)	(0.0335)	(0.0295)	(0.0302)	(0.0304)	(0.0268)
Jurisdictional hierarchy	-0.0626**	-0.0654**	-0.0280	-0.0285	-0.0308	-0.0200
	(0.0246)	(0.0266)	(0.0228)	(0.0269)	(0.0279)	(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.

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 are more likely to serve in the colonial military.

The estimated effects on colonial military recruitment are not only statistically significant but also quite substantial. Based on Model 2 in Table 1, the finding suggests that a 10% increase in *ln(slaves per land area)* is associated with a 3% increase in the *ln(soldiers per population)*. To illustrate, for an ethnic group of 100,000 populations that initially contributed the mean level of soldiers (about 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.

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

3.2.2 IV estimates

To further address the endogeneity between the slave trade and colonial military recruitment, the paper uses an instrumental variable. In particular, the strategy aims to deal with another possible route of the gun-slave cycle; slaves were taken from the originally conflict-prone areas, and ethnic groups residing in such regions naturally earned the martial reputation, not by the impact of 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 between military conflicts and the slave trade exists. 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 in 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).

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

[13]The 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).

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 might have influenced military formation through the colonial government recruiting more from the cities and ports in the coastal regions. Therefore, in some IV specifications, I control for the geographic factors including the distance from the coast, as well as 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, which indicates 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 the slave trade influences military recruitment by generating the martial images of certain ethnic groups favored by the colonial administration. The argument implies that such reputations may be formed quite a while ago rather than recently, especially given that the colonial government would refer to the previous history of conflicts. One alternative mechanism to this could be the *rachet*, one of the recruitment practices in the early French colonial army that buys the 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

Table 3: Instrumental Variable Regression Analysis

	(1)	(2)	(3)	(4)
	Second stage: DV is ln(Quota/pop.)			
ln(Slaves per land area)	0.328***	0.311***	0.155***	0.166***
	(0.0697)	(0.0640)	(0.0534)	(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(Slaves per land area)			
ln(Distance from Salvador)	-1.178***	-1.168***	-5.296**	-5.356**
	(0.288)	(0.291)	(2.156)	(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.

soldiers in the era of Scramble for Africa, the path-dependence of recruitment practice is one possibility that explains the correlation between the history of the slave trade and the colonial military formation. This logic expects the effect of recent slave export is higher than that of the past trades if the colonial government directly recruits from the 'slaves' rather than from the people it highly values as a fighting force.

To evaluate the weights of these two mechanisms, the models in Table 4 use the same explanatory variable used in the earlier analyses but divided it to the numbers exported 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 rachet mechanism since the export during the 1800s does not significantly increase the chance of military recruitment. Instead, it suggests that early recruitment practice has been replaced by the government's desire to draft more efficient fighting forces.

Table 4: Regression Analysis of Military Recruitment in FWA

	(1)	(2)	(3)	(4)	(5)
ln(Exports in 1500s)	0.0947	0.0913	-0.0122	0.0630	-0.196
	(0.238)	(0.239)	(0.203)	(0.267)	(0.223)
ln(Exports in 1600s)	0.619***	0.617***	0.439**	0.682***	0.434***
	(0.207)	(0.208)	(0.177)	(0.194)	(0.165)
ln(Exports in 1700s)	0.203***	0.205***	0.0860	0.136**	0.0878*
	(0.0681)	(0.0684)	(0.0571)	(0.0641)	(0.0533)
ln(Exports in 1800s)	0.0376	0.0409	-0.0463	0.0176	-0.0571
	(0.0568)	(0.0573)	(0.0472)	(0.0521)	(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
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

4 Discussions and Conclusion

In this paper, I examined how the military has been 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 generating armed conflicts and transforming the socio-economic environment of the region. 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, how the indigenous army was formed under the colonial

power has been understudied so far. This study shows that military formation under colonialism also experienced a similar problem common in most civil-military relations nowadays. The colonial governments wanted to ensure the 'protection *by* and *from* the military' (Feaver 1996, p.154). In the colonial context, the solution is derived from the racist ideology that some ethnic groups would be more competent on the battlefield and more trustworthy, although it may be questionable that recruiting from 'martial races' helped attain the goal.

This paper also sheds light on the political effects of the slave trade. The 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 in the military. Furthermore, the 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, which ethnic groups seized more power in the military heavily affected the likelihood of coups (Ejiogu 2007). 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.

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

	(1)	(2)	(3)	(4)	(5)	(6)
ln(Slaves per land area)	0.00746**	0.00958***	0.00809***	0.00773***	0.00950***	0.00855***
	(0.00286)	(0.00297)	(0.00303)	(0.00232)	(0.00243)	(0.00258)
Local resistance			-0.000641***			-0.000157
			(0.000162)			(0.000164)
Year of colonial conquest			-0.000351			0.0000383
			(0.000342)			(0.000309)
European trade counter			0.00770			0.00464
			(0.00631)			(0.00543)
Trade taxes per capita			-0.00541			0.00756
			(0.00842)			(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^2s 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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