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The Impact of Slave Trade on Current Civil Conflict in Sub-Saharan Africa

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1 Introduction

African countries have been most severely affected by civil conflict during the post-independence period; approximately 8.5% of country-years in Africa since 1950 have civil wars resulting in at least 1,000 deaths compared to around 5% of country-years in the rest of the world (Besley and Reynal-Querol, 2014). Hence, the causes of civil violence in Africa are of particular interest.

What are the rooted causes of civil conflicts? Answers to this critical question have evolved over time. Since late 1990s, a group of researchers at the World Bank's "Economics of Civil War, Crime, and Violence" project, led by Paul Collier, have introduced econometrics models into the field of conflicts and development (Collier and Hoeffler; 1998, 2004). Together with a few other economists (Fearon and Laitin, 2003; Sambanis, 2004), they have made great contributions towards finding the correlates of civil conflict. It is now well known that the occurrence of civil conflict is robustly linked to the economic conditions (income per capita, for example), ethnic fragmentation and polarization, population, natural resources, political institution, trade, as well as rough terrain. However, as Blattman and Miguel (2010) argued: "In many cases it is still not clear which of the above correlates actually cause war and which are merely symptoms of deeper problems." One example could be the argument on the poverty-conflict relationship. Does poverty causes conflicts? Or, on the contrary, poor countries may be poor in part because they have had plenty of civil conflicts in their recent past.

Later, the focus switched to the identification strategies based on exogenous variation in the economic conditions, in order to convincingly avoid endogeneity problem and identify causal relationships. Miguel *et al.* (2004) made the first attempt to use rainfall growth as an instrument to show the causal effect of economic shocks on civil conflict in sub-Saharan Africa (SSA). After their influential work, many subsequent conflict-related empirical studies began to explore the relationship between climate variability and conflict, finding the significant impact of weather on conflict in Africa, India, and China from past till now

(Burke et al., 2009; Bai and Kung, 2011; Bohlken and Sergenti, 2010; Couttenier and Soubeyran, 2014).

More recently, the attention has moved to the subnational- or disaggregated-level analysis since the country-level studies have inherent limitations. In national-level analysis, it is hard to precisely estimate the individual- and group-level conflict determinants, such as ethnic characteristics and regional resource endowments. In practice, the country-level framework is either split by administrative regions (Hodler and Raschky, 2014) or grid cells of 1 degree of latitude by 1 degree of longitude (Harari and La Ferrara, 2014). Furthermore, a burgeoning literature seeks to discover ever deeper causes of civil conflict rooted in history. Besley and Reynal-Querol (2014) shown that the modern era violence is correlated with the historical conflict in Africa in the precolonial period between 1400 and 1700. Arbatli *et al.* (2015) demonstrated that the degree of genetic diversity, determined during the course of the prehistoric "out of Africa" migration, significantly contribute to the distribution of civil conflict nowadays. Their research shed light on the importance of long-term effects that historic events can have on civil conflict.

This study aims to contribute to the causation analysis in Africa from a historical perspective, by investigating the long-term effects of slave trade on civil conflict in Africa in the present age. Historical events have enduring economic, political, and social legacies that have a bearing on contemporary conflict. The African continent experienced slave trade for about five hundred years (from 1400 to 1900). The impacts of slave trade on ethnic groups varied. As those pre-colonial ethnic homelands were partitioned and united by European powers during the "Scramble for Africa" period between 1881 and 1914, the long-lasting effects of slave trade might be greater in some regions in a given country and relatively trivial in others. Exploiting variations across ethnic groups, we construct a subnational-level analysis that has never been implemented in the civil conflict literature. We find that slave trade causes the spatial distribution of civil conflict in Africa. That is, the ethnic homelands that have more slaves exported in the colonial period are more prone to conflict in the present.

The remainder of this paper is organized as follows. In Section 2, we provide a description of slave trade, emphasizing on the manner of slaves acquisition and resulting detrimental effects. In Section 3, we provide an overview of the existing literature on slave trade. Section 4 discusses data and measurement. Section 5 presents the estimation framework and Section 6 presents our results.

2 Background of Slave Trade in Africa

Africa's history is intimately connected with slavery. Between 1400 and 1900, slaves were shipped through four major trade routes: the transatlantic, Indian Ocean, Red Sea, and trans-Saharan. Figure 1 displays the transportation route and size of each slave trade. Although the trans-Atlantic slave trade was not as old as the other three slave trades, it has the largest volume (12 million) of slaves exported. In total, around 18 million slaves were taken from Africa in the four slave trades over this 400-year period (Nunn, 2008). The direct detrimental impact of slave trade on Africa is a large-scale population decline; by 1850 Africa's population was only half of what it would have been had the slave trades not taken place (Manning, 1990). On the other hand, the way that slaves were procured has subsequent devastating effects on the institutional and social structures of African societies.

One of the most remarkable features of Africa's slave trade between 1400 and 1900 is that, slaves were commonly captured through wars, raids, and kidnappings within the same ethnicities. Historical accounts show that villages raided other villages no matter how closed they had been; Individuals were enslaved by acquaintances, friends, or even relatives and family members (Nunn, 2008). As a result, the uncertainty and insecurity within communities created an atmosphere of mistrust among individuals, and relations between villages became hostile, which in turn weakened community's cohesion and ethnic identity. These subsequent social, institutional, and economic outcomes may further affect the contemporary civil conflict.

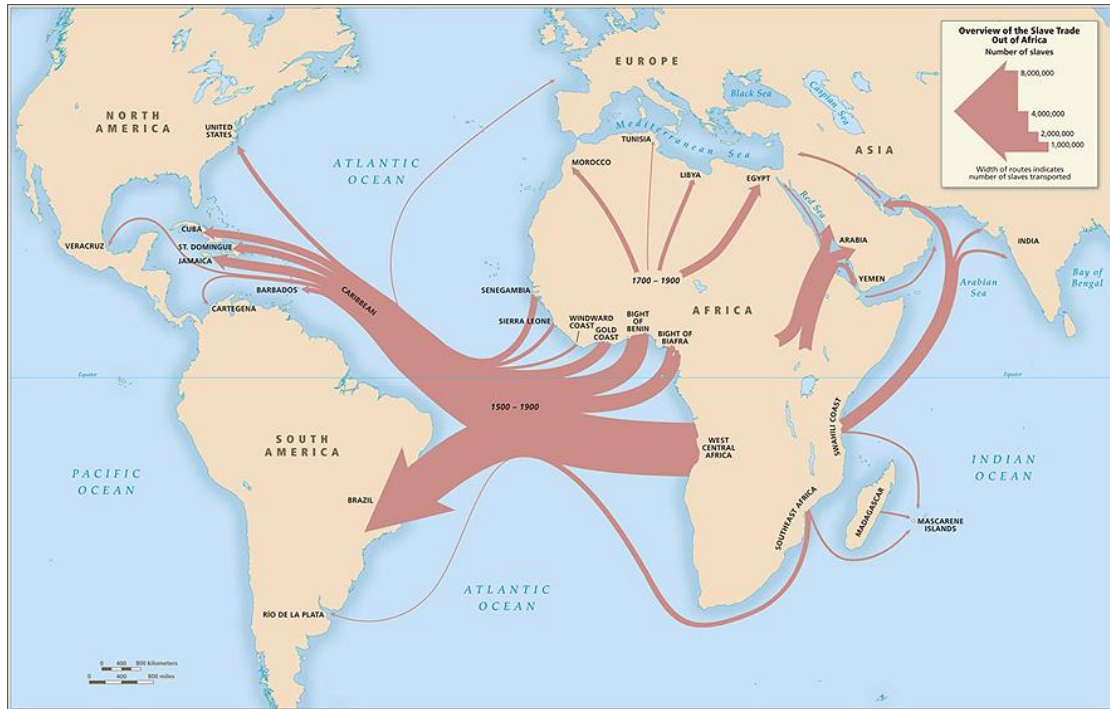


Figure 1 Four Slave Trades during 1500-1900

3 Existing Literature Review on Slave Trade

A review of literature on the causes of civil conflict is already presented in section 1. Hence, I will focus on the research related to slave trade.

In economics, Nunn (2008) firstly documented the negative relationship between the scale of slave trade and contemporary economic development in African countries. Nunn and Wantchekon (2010) then took advantage of Murdock's ethnic map to obtain the number of slaves taken from each ethnic group. They showed that the current trust levels within Africa can be explained by slave trade. The long-term effects of slave trade on Africa's social structure are studied, too. Dalton and Leung (2014) found that males were disproportionately enslaved, which led to prolonged abnormal sex ratios and finally high polygyny rates.

To the best of my knowledge, only Besley and Reynal-Querol (2014) mentioned the impact of slave trade on modern era civil conflict. However, they treated slave trade as a control variable without addressing the endogeneity problem. Furthermore, the impact of slave trade is unclear in their “grid cell” subnational analysis.

4 Data

Conflicts are not randomly distributed within countries. In order to capture the impact of within-country heterogeneity, recent subnational studies usually disaggregate the countries by either administrative regions (Hodler and Raschky, 2014) or gridded cells of 1 degree of latitude by 1 degree of longitude (Harari and La Ferrara, 2014).

An alternative is to divide the countries by boundaries of ethnic homelands. Michalopoulos and Papaioannou (2013) firstly disaggregated African countries by their ethnic homelands and investigated the association between pre-colonial ethnic political institutions and contemporary regional development. As discussed above, this pattern of subnational analysis has not been introduced into conflict economics yet. In fact, analyzing Africa's conflict based on historical local delineations would make more sense compared to existing political partitions or arbitrary separations. It is because that the statehood of African countries is not well developed as other countries across the globe. Firstly, most of the African countries gained independence only after World War II. Secondly, even the borders of these sovereign countries were arbitrarily drawn by European powers one hundred years ago. On the contrary, African ethnicities before colonization were spontaneously formed and had longer history.

Murdock (1959, 1967) collected pre-colonial ethnicity data and portrayed an Africa map including 843 tribal groups. Based on Murdock's data, we are able to show the spatial distribution of civil conflict in either present political map or historical ethnicity map. As shown in Figure 2 Conflicts in Arica by ethnic borders (left) country borders (right)Figure 2¹, a dot indicates one conflict event; a blue region experienced less civil conflicts, while a red region had more conflict events. One can see that Murdock's ethnic map does a better job in capturing the spatial heterogeneity of civil conflict, that is, conflict dots are mostly fallen within the ethnic borders. The graphical evidence that African civil conflict is ethnically motivated again supports my argument: subnational study for Africa should be implemented in ethnic level.

¹ Figure 2 is made by Peter S. Larson in his article "African Conflict and the Murdock Map of Ethnic Boundaries".

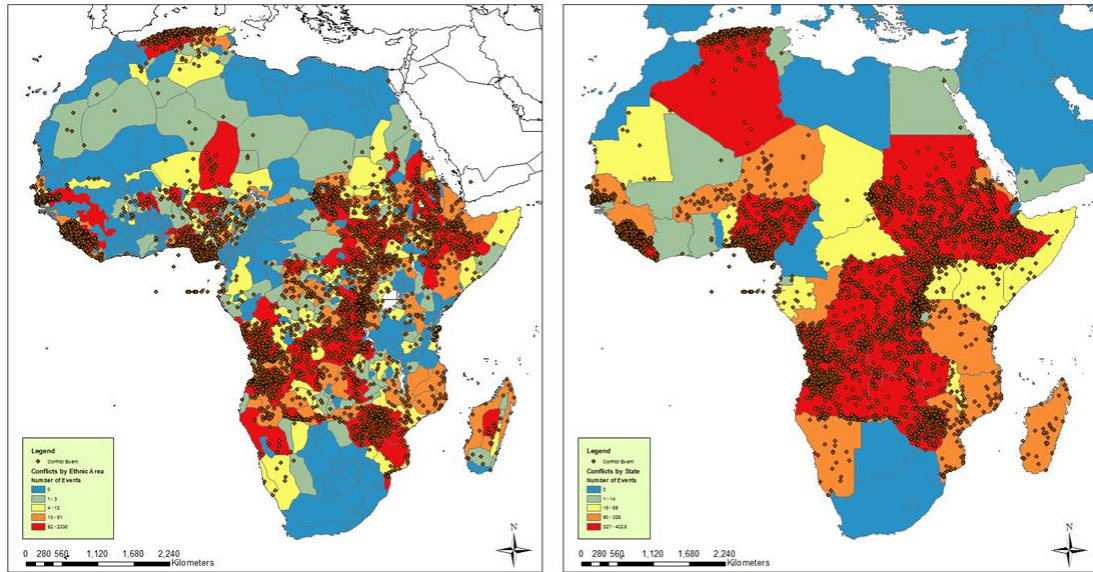


Figure 2 Conflicts in Africa by ethnic borders (left) country borders (right)

The ethnicity-level data on slave exports are from Nunn and Wantchekon (2011). Data on civil conflicts, our dependent variable, is collected from the ACLED (Armed Conflict Location and Event Data) (Raleigh et al. 2010). Other country-level control variables include legal origin, ethnic fragmentation or polarization, the log of the length of the coastline, political institution (proxied by POLITY IV democracy index), and the proportion of the population that is Muslim. We also add control variables accounting for characteristics of each subnational unit (ethnicity-country pair), including initial local economic development (proxied by light density at night in 1996), population density, rough terrain (proxied by average elevation and its standard deviation), land suitability for agriculture, land area, water area, and endowment of natural resources. Our sample consists of 813 ethnicity-country pair from 28 SSA countries over the period of 1997-2014.

5 Methodology

The empirical framework comprises different specifications, exploiting variations in either cross-section or panel data, in order to examine the explanatory power of slave trade for spatial distribution of civil conflict in Africa from 1997 to 2014.

The cross-section regression model is as follows.

$$y_{i,c} = \alpha_c + \beta * slave\ trade_i + X'_c \Omega + Z'_{i,c} \Gamma + \varepsilon_{i,c} \quad (1)$$

where $y_{i,c}$ is the outcome measure of civil conflict in the homeland of ethnic group i in country c , α_c is a country fixed effect, $slave\ trade_i$ denotes the degree of slave trade that ethnic group i experienced between 1400 and 1900, X_c captures country-level controls, including legal origin, ethnic fragmentation or polarization, the log of the length of the coastline, political institution (proxied by POLITY IV democracy index), and the proportion of the population that is Muslim, and $Z_{i,c}$ is a vector of control variables accounting for characteristics of each ethnicity-country pair, including initial local economic development (proxied by light density at night in 1996), population density, rough terrain (proxied by average elevation and its standard deviation), land suitability for agriculture, land area, water area, and endowment of natural resources.

We use several outcome measures. The first is the (log transformed) number of civil conflict occurred in a homeland of ethnic group i in country c (ethnicity-country region hereafter) between 1997 and 2014. The second is the (log transformed) number of years in which an ethnicity-country region experience one or more conflict events. The independent variable of interest $slave\ trade_i$ is normalized by $\ln(1 + slave\ exports/Tribal\ land\ area)$.

Concerning that the number of slaves shipped in history might have measurement error, as well as there might be unobserved variables relating with both slave trade and contemporary conflict², I will employ instrumental variables (IV) that do not affect conflict except through their influence on slave trade. IV approach can yield consistent estimates and

² For example, an ethnic group that was initially underdeveloped in conflict resolution mechanism would be more active in participating slave trade, and continue to be prone to conflict in the present.

obtain causal relationship. Following Nunn (2008), I will use the distances from each ethnic group to the locations where slaves were demanded as the instruments. According to the history, the location of the demand for African slaves was determined by its natural endowments, which are not related with the supply of slaves. For example, slaves were shipped through the transatlantic route towards the West Indies because of climates suitable for growing sugar and tobacco. A majority of slaves were taken from Western Africa in order to reduce the transportation cost in shipping to the West Indies. On the contrary, it is not the case that sugar plantations were established in the West Indies because the West Indies were close to Africa. In other words, the distances are related with slave exports only in terms of transportation cost. Hence, the instruments are uncorrelated with any other characteristics of the ethnic group that affect the contemporary conflict prevalence.

6 Results

Table 1 reports our IV estimates. First-stage estimates are reported in the bottom panel, and second-stage estimates are reported in the top panel. The first-stage estimates show that both the Transatlantic trade distance and Indian Ocean trade distance are negatively related to the intensity of slave exports. And the F-stat values are around 10, which mitigates our concerns of weak instruments problem. The outcome variable for the first three columns is the (log transformed) number of civil conflict occurred in a ethnicity-country region, and for the last three columns, the outcome is the (log transformed) number of years in which an ethnicity-country region experience one or more conflict events. Across all six columns the effects of slave trade on civil conflict are both statistically and economically significant, which indicates that the impact of slave trade is not affected by conditioning on either country-level or ethnicity-level control variables.

Table 1 IV ESTIMATES OF THE IMPACTS OF SLAVE TRADE ON CIVIL CONFLICT

	(1)	(2)	(3)	(4)	(5)	(6)
Second Stage.						
	Dependent Variable:			Dependent Variable:		
	numbers of civil conflict			years of civil conflict		
Slave trade	0.341*	0.394**	0.394**	0.107**	0.118**	0.118**
	(0.196)	(0.200)	(0.200)	(0.051)	(0.048)	(0.048)
Ethnicity-level controls	No	Yes	Yes	No	Yes	Yes
Country-level controls	No	No	Yes	No	No	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
First Stage. Dependent variable is slave trade						
Transatlantic distance	-0.217***	-0.155***	-0.155***	-0.217***	-0.155***	-0.155***
	(-0.054)	(0.033)	(0.033)	(-0.054)	(0.033)	(0.033)
Indian Ocean distance	-0.241***	-0.228***	-0.228***	-0.241***	-0.228***	-0.228***
	(-0.075)	(-0.048)	(-0.048)	(-0.075)	(-0.048)	(-0.048)
Exc. Instruments F-stat	8.28	12.86	12.86	8.28	12.86	12.86
Ethnicity-level controls	No	Yes	Yes	No	Yes	Yes
Country-level controls	No	No	Yes	No	No	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N	813	813	813	813	813	813

Notes: Standard errors are clustered in the country level and reported in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

7 Conclusion

Slave trade affects regional economic development, degree of trust among individuals, community cohesion, and ethnic identity, which in turn have a bearing on the spatial distribution of civil conflict in Africa. Hence, ethnic homelands that have more slaves exported are expected to be more prone to conflict. By using a subnational dataset in Sub Sahara Africa (SSA) between 1997 and 2014, we find that slave trade in the colonial period significantly causes higher risks of civil conflict in the present. In order to reduce the concern of endogeneity, we employ the historical slave trade distances as instruments, which do not

affect conflict except through their influence on slave trade. It is interesting to further distinct the impact of slave trade on either battle-related conflict or non-battle conflict. Furthermore, by using the number of deaths resulted from conflict, we can explore that whether large-scale civil conflict or small-scale incidence is more sensitive to slave trade. Also, it will be meaningful to test the channels through which slave trade affects the contemporary conflict.

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