The Impact of the Transatlantic Slave Trade on Ethnic Stratification in Africa

By Warren Whatley and Rob Gillezeau*

The last decade has been a golden age for the study of African economic history. As noted by Antony G. Hopkins (2009) "economists have produced a new economic history of Africa in the course of the past decade," with two primary narratives. The first narrative is that "Africa has suffered a 'reversal of fortune' during the past 500 years." The second is that "ethnic fragmentation, which has deep historical roots, is a distinct cause of African economic backwardness (page 155)." In this article, we argue that these narratives are interconnected. In particular, we argue that Africa's slave trade, which helped drive its "reversal of fortune," increased the degree of ethnic fragmentation in Africa today. In a prior paper, Warren Whatley and Rob Gillezeau (2011) show that under plausible conditions the slave trade may have constrained the geographic scope of authority and increased the salience of ethnic identity. In this paper we empirically test this relationship. Using both OLS and instrumental variables analysis, we find an economically and statistically significant positive relationship between various measures of ethnic fragmentation in the present and slave exports from the western coast of Africa in the past.

These results are significant when considered in the context of other recent work in African economic history. In particular, the results aid in the interpretation of Nathan Nunn's analysis of the slave trade and GDP (2008) in which he finds that the transatlantic slave trade resulted in the long-term, systematic underdevelopment of many African economies. This work does not capture the mechanism through which this underdevelopment may have occurred and while Nathan Nunn and Leonard Wantchekon (forthcoming) make an effort to explain the process through the development of mistrust it seems unlikely that this is the only causal mechanism. The strong positive relationship between ethnic fractionalization and slave exports found in this paper suggests that increased ethnic fractionalization may have been a prominent factor in this underdevelopment. This would be consistent with work by Robert Levine and William Easterly (1997), Paul Collier (1998), Robert Bates (2008) and others, but rather than see ethnic fractionalization as an exogenous source of social conflict this paper presents evidence that it is also an endogenous outcome of the social conflict associated with slaving. Finally, this paper cautions that controlling for ethnic fractionalization will result in underestimates of the impact of slavery on development.

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I. Ethnic Identity, the Slave Trade, and Development

A number of important studies have focused on ethnic stratification and its exogenous impact on economic performance in Africa. The best known is a study by Levine and Easterly (1997) which argues that roughly 25 percent of the difference in the growth experiences of African and Asian economies can be attributed to the greater ethnic diversity in Africa. While it is unclear precisely how ethnicity influences economic performance, the authors present some evidence on a negative relationship between ethnic diversity and under-investment in schooling, weak financial institutions, poor infrastructure and black-market premia.

Collier (1998) cautions that the relationship between ethnicity and economic performance is more complex and contextual than this. While arguing that ethnic diversity can become a drag on growth, Collier adds the proviso that the negative effects are largely confined to economies with limited individual rights. In fact, ethnic diversity can be a plus. While democratic institutions can effectively mitigate the negative effects of ethnic diversity, highly diverse countries are less likely (not more likely) to break out into ethnic conflict, presumably because of the higher cost of inter-ethnic cooperation. Bates (2008) contextualizes the impact of ethnicity in a similar way. He argues that the predatory nature of the post-colonial state in many African countries created political and military challenges to its authority. When the challenges intensified, ethnic stratification also intensified to the point where "things fell apart."

The literature on ethnic conflict tends to assume that the oppositional character of ethnic identity, with its insider-outsider distinctions, is a source of conflict that impedes growth. A useful alternative view is offered by Joan Esteban and Debraj Ray (2008). In situations where political behavior can be modeled as "prize grabbing" mass mobilization, there is a built-in bias towards ethnic rather than class mobilization because ethnic groups include the rich, who have the resources, and the poor, who provide the labor needed to mount a mass movement. Conflict will tend to occur along ethnic lines, not because ethnic identity is inherently conflictual but because it is easier to mount an ethnically-based mass movement.

In all of these examples ethnicity is treated as exogenous and given to the situation. In fact, Collier expresses an uneasiness about the negative connotations being attached to ethnic diversity in Africa because "... there is nothing a country can legitimately do about its ethnic composition" (1998, pg. 387-88). But there is a large and growing literature which attempts to endogenize ethnic identity, to varying degrees. This literature tends to emphasize the fact that people have multiple identities that are malleable, politically manipulable and situational. Posner (2006), for example, develops and tests a model explicitly designed to identify the conditions under which individual Zambians choose to organize around one particular identity rather than another. Individuals are viewed as having a portfolio of identities from which they can choose, and it is postulated that individuals choose the one that has the best chances of putting them in the winning coalition. The important political choice in post-colonial Zambia is between ethnic identity and language identity, and Posner is successful in revealing the conditions under which people choose one or the other. Still, in this formulation ethnic identity as distinct from language identity retains a high degree of exogeniety. The choice is between ethnic and language identity, not between competing ethnic identities.

Ethnic identity becomes more endogenous and malleable when one leaves the realm of rational choice and takes a historical view. Posner (2006, pages 21-88), for example, spends two chapters tracing the historical origins of Zambia's ethnic and language groupings. The conventional wisdom here emphasizes the role played by the institutions of colonial rule, not the conflict and violence of the slave trade. Quoting Posner,

> "In tracing the origins of contemporary Zambian ethnic identity to the institutions of colonial rule, I am following an extremely well-trodden path. In fact, the notion that the colonial state created or heightened the importance of ethnic identities in postcolonial Africa is so accepted these days that to argue *otherwise* would probably be controversial (2006, page 23)."

Yet *otherwise* is precisely what we want to argue. The conventional view roots the salience of ethnic identity in Africa in what Kathryn Firmin-Sellers calls "the logic of indirect rule" (1996). Colonial administrations, befuddled by the variety of local ethnic political economies they encountered,

found it difficult to extract economic surplus directly. In situations like this, characterized by asymmetric information, the principal (the colonial power) has an incentive to share the surplus with agents (indigenous authorities) who know how to monitor and direct the production and flow of surplus to the top. The colonial power stood behind and strengthened the indigenous territorial authorities, often drawing maps to clearly delineate boundaries. Posner (2006) argues that the logic of indirect rule also provided incentives for local inhabitants to identify with the prevailing social prescriptions that legitimize the local authority. It is through this identity – this ethnic identity – that local inhabitants gained access to important public goods.

This view is plausible and well-documented. The point we want to make in this paper is that the slave trade helped shape the ethnic landscape that the colonial powers encountered in Africa. We are not trying to overturn the conventional wisdom but to root it more firmly in the history of Africa. In fact, we use the many maps of ethnic boundaries drawn by colonial authorities to construct our measure of ethnic diversity across the African landscape. We then ask did the intensity of past slaving activities influence this ethnic landscape? Our prior, formulated in Whatley and Gillezeau (2011), is that the slave trade influenced the spatial distribution of political authority and the salience of ethnic identity. The idea is straightforward. When the international demand for Africans as slaves penetrates an area of Africa it drives the marginal value of people as captives above their marginal value as producers to be taxed. Consequently, increases in demand price reduce the incentives to build states and increases the incentive to raid for slaves. The immediate effect is smaller states and a greater number of independent villages. To the extent that there exist prohibitions against enslaving one's own, then an increase in demand price will also intensify the incentive to produce "outsiders" who can be raided. Finally, to the extent that local political authority is absolutist, increases in demand price will also reduce the incentive to build coalitions across villages to defend against slave raiders. All of these forces contribute to a greater degree of ethnic diversity across the African landscape. We believe that recognition of a history of slaving in Africa can help explain the salience of ethnic identity among African people, the great diversity of ethnic identities on the continent of Africa, the spatial distribution of ethnic authorities, and the conflictual nature of some ethnic relations.

II. Emprical Strategy

In order to determine the impact of the transatlantic slave trade on the long-run development of ethnicity in Africa, we compare the number of ethnicities in equally sized regions along the West African coast with the number of slaves that departed from these regions. Our basic strategy is as follows. We divide the western coast of Africa into 200 evenly spaced points starting at the northernmost point of Tunisia and ending at the middle of South Africa. The distance between points is 50 kilometres. Both the dependent and independent variables are constructed from spatial data that fall within circular buffer zones around these points. Our dependent variable is the number of ethnicities in the region around each coastal point. The spatial ethno-linguistic data is taken from the digitized Peoples Atlas compiled by Marc L. Felix and Charles Meur (2001). It is our understanding that this is the most modern Africa-wide ethno-linguistic classification map available. For robustness, we also use the ethno-linguistic mapping of Africa developed by George Murdock (1959). This is not our preferred measure because it stifles much of the variation found in more-modern mappings and appears to group sub-ethnicities together. Our independent variables include the number of slaves exported from nearby African ports, courtesy of the Transatlantic Slave Trade Database,[1]

[1] **Eltis, David.** *The Trans-Atlantic Slave Trade Database.* http://www.slavevoyages.org (accessed October 1, 2010)

soil and terrain slope constraints, population density in 1960,[2] elevation,[3] local agricultural suitability as measured by climate, forest coverage, and desert coverage.[4]

We perform our regression analysis with 3 different circular buffer sizes: 125 kilometres, 250 kilometres, and 500 kilometres in radius. In our analysis using the 125 kilometre buffer our environmental variables are based on their mean value in that region, the number of ethnicities is the total number found within that buffer, and slave exports are the total exported from slaving ports falling within that buffer. In addition to the buffer method, we perform our analysis assigning each ethnicity to the nearest of the coastal points. Using each of these methods, we perform the following OLS regression:

$$E_i = \alpha + \beta_1 S_i + \gamma X_i + v_i$$

Where E_i is the number of ethnicities assigned to coastal point i, α is the intercept, S_i is the number of slave exports assigned to coastal point i, X_i is a vector of environmental covariates assigned to coastal point i, and v_i is an error term.

There is almost certainly some degree of reverse causation in the above specifications. If slaving was taboo within one's own ethnic group it would have been necessary for other ethnicities to be present nearby in order to capture slaves. In order to present a causal estimate of the impact of slaving on the development of ethnicity, we make use of the instruments developed by Nunn (2008) which in this analysis are the distances between the coastal points and the nearest slave destination in the Americas or North Africa.[5]

The circular buffer zones overlap along the coast, but they have the virtue of encompassing much interior territory. To ensure the robustness of the results, we take steps to reduce overlap. We draw buffers around every other coastal point (resulting in 100 buffer zones) and every fourth (producing 50 buffer zones). We also perform our analysis on a set of buffer zones that are just tangent to each other, with no overlap. This produces 67, 40 and 19 zones respectively for the 125km, 250km and 500km buffers. Finally, we also perform our analysis at the country level.

III. Results

In Table 1 we present results from several of the OLS and 2SLS regression specifications. The complete set of OLS and first and second stage 2SLS results for both of our ethnicity measures are available in the online Appendix.

Columns 2 and 3 contain a subset of our OLS results, using both the Peoples Atlas and Murdock measures of ethnicity to generate our outcome variables. It is clear that there is a robust, positive relationship between slave exports and the number of ethnicities as defined by the Peoples Atlas. Among the controls, agricultural suitability and population are positively related to the number of ethnicities while elevation, forest, and desert cover are all negatively related to the number of ethnicities. The positive relationship between slave exports and ethnicity tends to persist using the Murdock (1959) measure, although it is a weaker relationship than with the Peoples Atlas. In general, the results are stronger the larger the buffer zone and the greater the number of observations.

In columns 4 and 5, we display the coefficient on slave exports from our IV regressions. As in the OLS regressions, there exists a strong positive relationship between slave exports and the number of ethnicities in each region. The treatment effects are significantly larger in specifications using

[2]**UNESCO.** *UNEP Sioux Falls Clearninghouse* http://na.unep.net/datasets/datalist.php (accessed October 1, 2010)

[3]**USGS.** *USGS Geographic Data Download* http://edc2.usgs.gov/geodata/index.php. (accessed October 1, 2010)

[4]**IIASA** *Global Agro-Ecological Assessment for Agriculture in the 21st Century: Methodology and Results.* http://www.iiasa.ac.at/Research/LUC/GAEZ/index.htm (accessed October 1, 2010)

[5]The American destinations are Virginia, Havana, Haiti, Kingston, Dominica, Guyana, Salvador, Rio de Janeiro, and the North African destinations are Algiers, Tunis, Tripoli, Bengahzi, Cairo.

Type	OLS	OLS	IV	IV	OLS	IV
P - 125km	0.015^{***}	0.013^{***}	0.038^{***}	0.038^{**}	0.008	0.026
P - 250km	0.041^{***}	0.042^{***}	0.123^{***}	0.120^{***}	0.036^{**}	0.153^{**}
P - 500km	0.160^{***}	0.166^{***}	0.342^{***}	0.353^{***}	0.141	0.315^{**}
P- Nearest	0.025^{***}	0.018^{***}	0.059^{**}	0.047^{***}		
M - 125km	-0.0004	-0.0007	0.038^{***}	0.038^{**}		
M - 250km	0.003^{**}	0.002	0.0006	0.002		
M- 500km	0.019^{***}	0.021^{***}	0.021^{***}	0.024^{***}		
M- Nearest	0.004^{***}	0.003^{***}	0.007	0.006^{***}		
Obs	200	100	200	100	67,40,19	67,40,19

TABLE 1—THE RESULTS PRESENTED IN THIS TABLE ARE CALCULATED USING OLS OR 2SLS. THE VARIABLES ARE CONSTRUCTED IN A BUFFER AROUND THE COASTAL OBSERVATION POINTS AS SPECIFIED IN THE TYPE COLUMN. THE 'P' MEASURE OF ETHNICITY IS CONSTRUCTED USING THE PEOPLES ATLAS IN FELIX AND MEUR (2001) WHILE THE 'M' MEASURE IS CONSTRUCTED FROM MURDOCK (1959).

the Peoples Atlas and only slightly larger in specifications using Murdock's mapping. The results from the first stage of the regressions are available in the online Appendix. The instrument is powerful and the strategy does not appear to suffer from a weak instruments problem.

The results are robust for all buffer sizes and numbers of observations for the Peoples Atlas. The Murdock results are generally robust, although weaker for smaller buffer zones. The results are robust to removing most observations from North Africa and South Africa. In columns 6 and 7, we present results using the Peoples Atlas where buffer zones are not allowed to overlap. As such, we have 67, 40, and 19 observations respectively. The downside to limiting the level of overlap is that we are unable to take advantage of much of the inland variation in ethnicity. These specifications provide results that are positive and are statistically significant in half of the specifications. The results are also robust to performing the analysis at the country-level.

To get an idea of the size of the treatment effect, we multiply the coefficients by mean slave exports. The small buffer zone estimates, using the Peoples Atlas, indicate that the slave trade resulted in an average increase of 0.9 to 2.3 local ethnicities in each of the 200 coastal regions. This should be viewed as a lower bound on the treatment effect. The larger buffer zone estimates, using the Peoples Atlas, suggest an average local increase (over a much larger area) of 43.6 to 110.95 ethnicities. Since, ethnicities overlap across buffer zones this overstates the treatment effect. This should be viewed as an upper bound on the treatment effect. For reference, the Peoples Atlas contains roughly 3700 ethnicities for all of Africa. It is difficult to pin down a precise treatment effect, but it is clear that the effect is economically significant even at the lower bound.

IV. Implications

We have argued that the slave trade increased the number of ethnic groupings in present-day Africa. We do not claim to understand the mechanism, although we believe that the slave trade likely constrained the geographic scope of political authority and heightened the incentive to distinguish insider from outsider. Our regressions identify a positive and statistically significant relationship between the number of slaves leaving the west coast of Africa and the limited geographic scope of twentieth century ethnic groupings. This relationship is robust to changes in the scheme for drawing ethnic boundaries, to the choice of observational unit, and to the inclusion of a variety of variables thought to influence the geographic scope of ethnic groupings. Our IV estimates produce support for the view that causality runs from slaving to ethnic diversity. We believe this finding has broad implications for research in the economic history of Africa.

Nunn and Wantchekon (forthcoming) find that the intensity of slave capturing and marketing in the past helps explain spatial and individual variation in the level of mistrust among Africans today. Coupled with the evidence on ethnic conflict, one might expect mistrust to be one of the many social manifestations of the kind of heightened ethnic identity that we find correlated with the slave trade.

At the most general level, our findings endogenize some of the ethnic diversity that characterizes contemporary Africa. Rather than view the salience of ethnic identity in Africa as something primordial, traditional, or even primitive, this paper presents evidence that it is the exact opposite – a legacy of the role and position of Africa in the creation of our modern world. At the same time, it is consistent with the view that ethnic diversity has roots in Africa that run deeper than the colonial experience. This may help explain why colonial powers often chose indirect rule and the strengthening of "traditional" authority. The plethora of moral ethnicities surviving the slave trade may have constrained the importation of European institutions. Acemoglu et al. (2001) might see this as a reversal of fortune. In this case, the extractive institution is organized slave raiding, which Nunn (2008) argues is not conducive to long-run growth. What we add to this line of thinking is a lock-in mechanism – ethnic diversity – which locks-out the importation of an alternative set of institutions that may have been more favorable to long-run growth (Matthew Lange, 2004), while locking-in the beneficiaries of slave raiding.

V. References

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