Universidad de
SanAndrés

COMPUTATIONAL TOOLS FOR RESEARCH

PROFESSOR: PHD AMELIA GIBBONS

End of course assignment

PERUCHIN TOMÁS
FRANCO RIOTTINI DEPETRIS

August 27, 2022

Resume

Nathan Nunn and Leonard Wantchekon (2011) examine one of the channels through which the slave trade can affect economic development today. Combining contemporary survey data at the individual level with historical data on slave shipments by ethnic group, they ask whether the slave trade led to the development of a culture of mistrust in Africa.

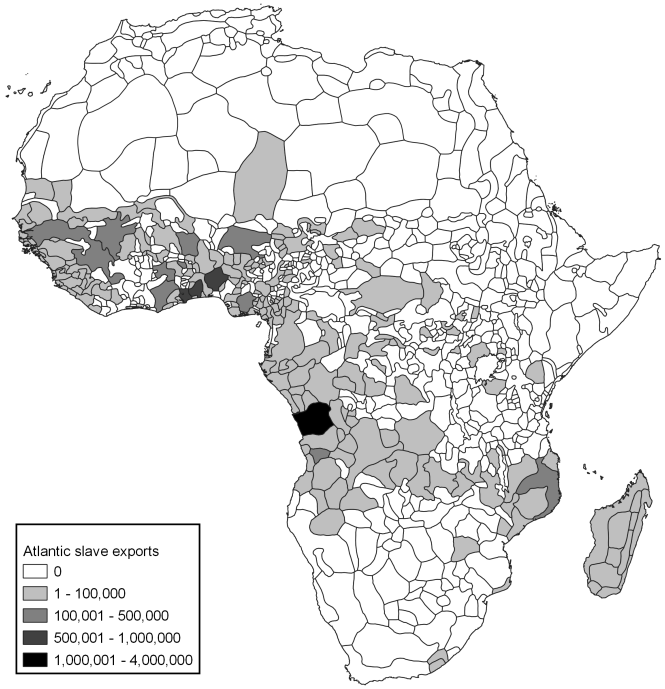
In this sense, the authors test the specific hypothesis that there is a connection between the slave trade in the past and lower trust today, which results in lower economic performance. The growing demand for slaves would have increased the incentives for people to try to sell each other into slavery. This generated a culture of impersonal mistrust as a defensive mechanism.

In this review we present a modification of the georeferenced maps of the article by Nunn and Wantchekon (2011). The objective is, on the one hand, to replicate the graphs that they show in their general article, and, on the other hand, to use additional data to increase the conclusions of the article. These additional data will be from other works by the same authors, as well as from other sources.

Replicated maps

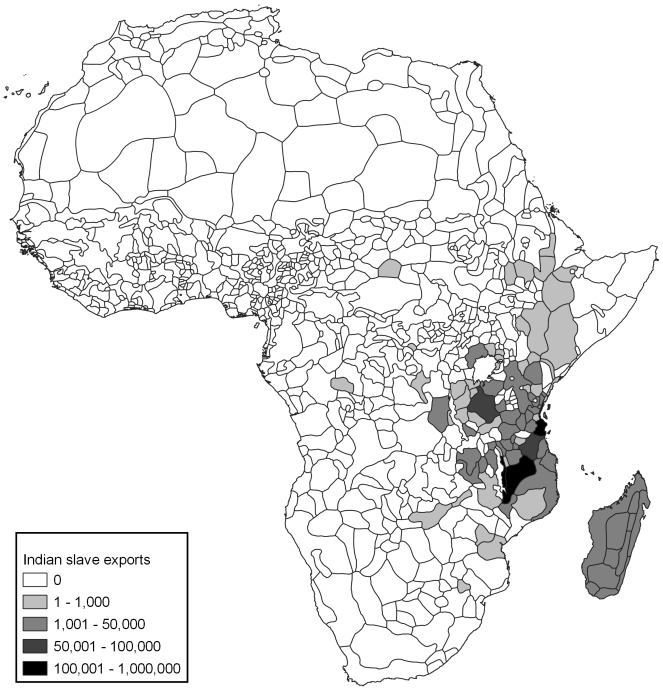
This section presents the replicated maps in the original format of the article Nunn, N. & Wantchekon, L. (2011): "The slave trade and the origins of distrust in Africa". These can be found in section II of the aforementioned document: Data Sources and Description, in point B: Ethnicity-Level Data on slave Exports.

Figure 1: Panel A. Atlantic slave exports



Source: Own elaboration based on data sets of Nunn, N., & Wantchekon, L. (2011): The slave trade and the origins of mistrust in Africa. American Economic Review.

Figure 2: Panel B. Indian slave exports



Source: Own elaboration based on data sets of Nunn, N., & Wantchekon, L. (2011): The slave trade and the origins of mistrust in Africa. American Economic Review.

Our added value

In the following sections we present a series of maps that seek to add information to the conclusions of the original work. In the first section, we show the formation of slave trade routes in the 18th and 19th centuries. In the second section, we show the relationship with European missionary activities that occurred in colonial Africa. In the third section, we analyse the evolution of these slave exports over the years, without a particular focus on what type of exports (whether to the Atlantic or the Indian). In that section, we show that these grew considerably in the 18th and 19th centuries, but their epicentres were marked in different regions of Africa, although with a certain sense with the final results of the original paper. In the last section, we relate two things. First, if the difficulty on the ground is related to slave exports (based on another paper by Nathan Nunn and Diego Puga). Then, we use current data to analyse that the places with the highest concentration of exported slaves have an inverse relationship with the current health facilities in sub-Saharan Africa.

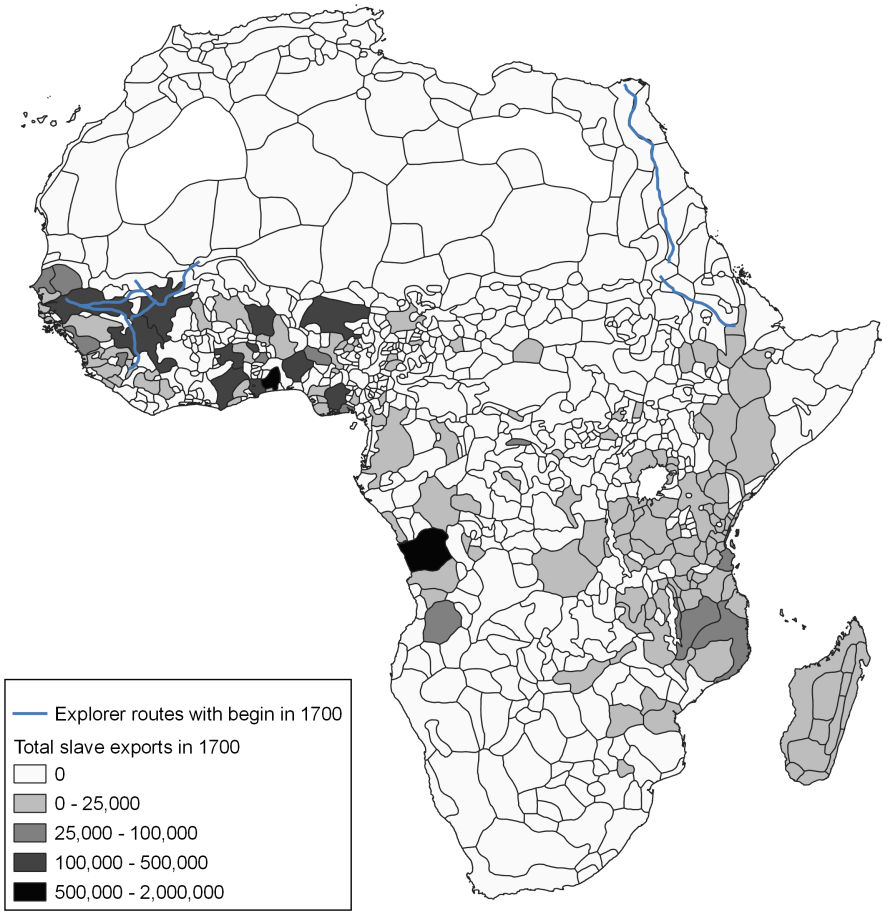
Atlantic slave exports and explorer routes maps by periods of time

In this series of maps, we show the Atlantic slave exports and Indian slave exports as a whole ("Atlantic slave exports" and "Indian slave exports"). In addition, we add the export routes that began in each of the centuries. Since our particular objective is to show that exploration routes are related to the level of slave exports, we select only the two centuries for which we have data on exploration routes, that is, the 17th and 18th centuries. In the third section, we will show the aggregate slave export data for all centuries.

As can be seen in Figure 3 west-central and northeast Africa saw the appearance of the first exploration routes for which we have records. As can be seen, the west-central route has a clear correlation with slave exports from

this area of Africa. Meanwhile, the northeast route does not seem to be indicative of such a concentration. Seeing how these routes connect to areas with large quantities of exported slaves, what it seems to indicate is that these would have been the routes used to transport them to the coasts, where the large export centres were located.

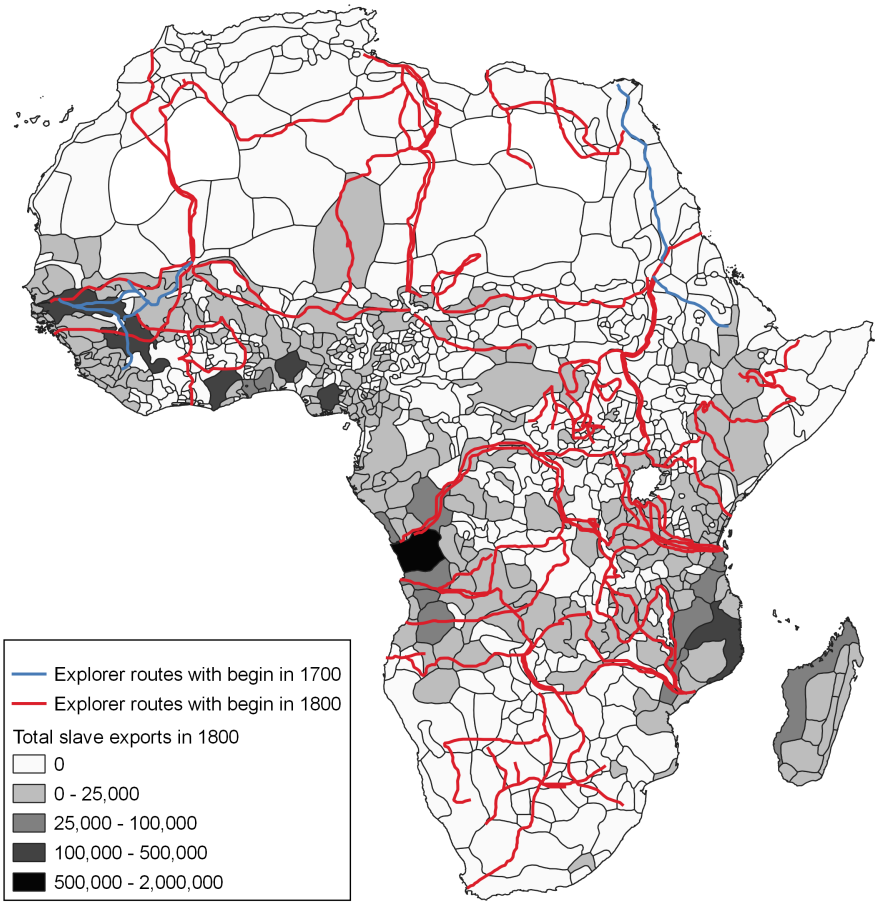
Figure 3: Atlantic slave exports and explorer routes in the period 1700-1799



Source: Own elaboration based on data sets of Nunn, N., & Wantchekon, L. (2011): The slave trade and the origins of mistrust in Africa. American Economic Review.

Another interesting map is the one corresponding to the 18th century. In it, we add the exploration routes that were created during that century. What is striking is the exponential growth of trade and the number of routes. The red lines show the routes used by explorers to reduce the distance between North and South Africa. The ethnic groups with the largest number of slaves exported are Kongo (what is now Angola), Fon, Yoruba, Ewe and Malinke.

Figure 4: Atlantic slave exports and explorer routes in the period 1800 -1899



Source: Own elaboration based on data sets of Nunn, N., & Wantchekon, L. (2011): The slave trade and the origins of mistrust in Africa. American Economic Review.

Atlantic slave exports and explorer routes maps by periods of time

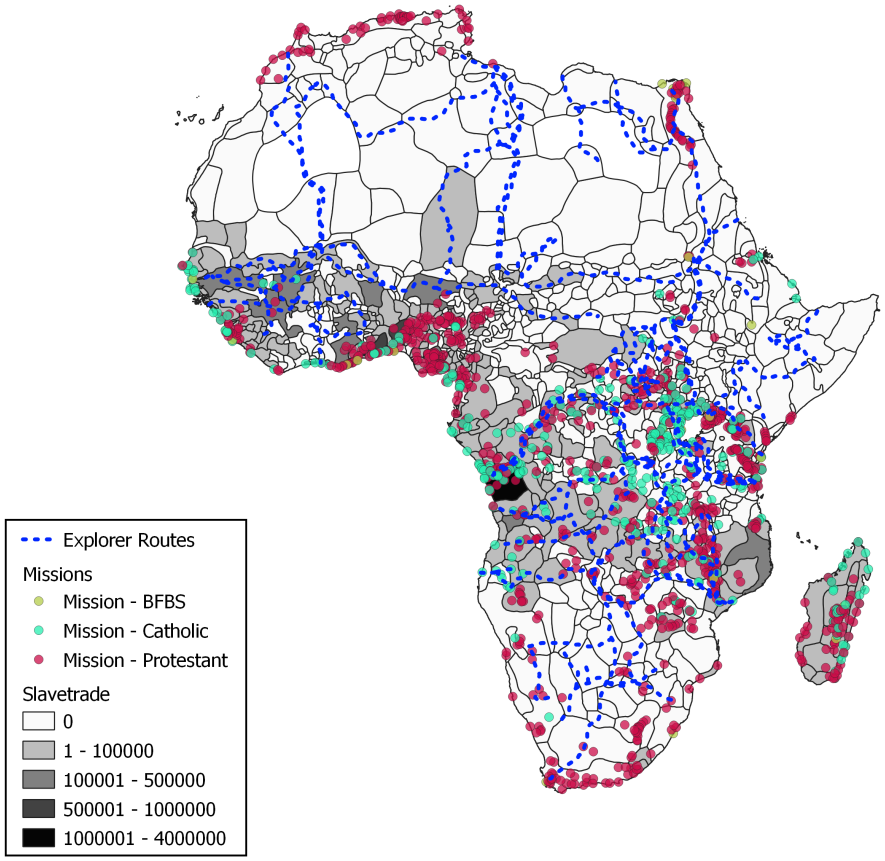
Here we show maps that responds to an exploratory exercise of crossing two datasets used by Nunn. First, the scales of slave exports to the Atlantic and the routes of explorers from Nunn Wantchekon (2011). Second, we use the data of Nunn (2010) that geolocalize the Catholic and Protestant mission stations in Africa.

For each ethnicity, Nunn(2010) calculate the number of missions (per 1,000 square kilometers) on land historically inhabited by the group. We show this data with color points that represents a mission station of the Catholic, Protestant and British and Foreign Bible Society. This can be verified with, aqua green red, and yellow dots respectively.

The idea of displaying the data together is based on Nunn (2010) missionaries sought to bring an end to the slave trade within Africa, and thus a concerted effort was made to locate mission stations in areas where slavery was prevalent (Johnson 1967).

In figure 5 we present the scale of Slave trade in black and white, the the explorer roures in blue and the missions with color dots.

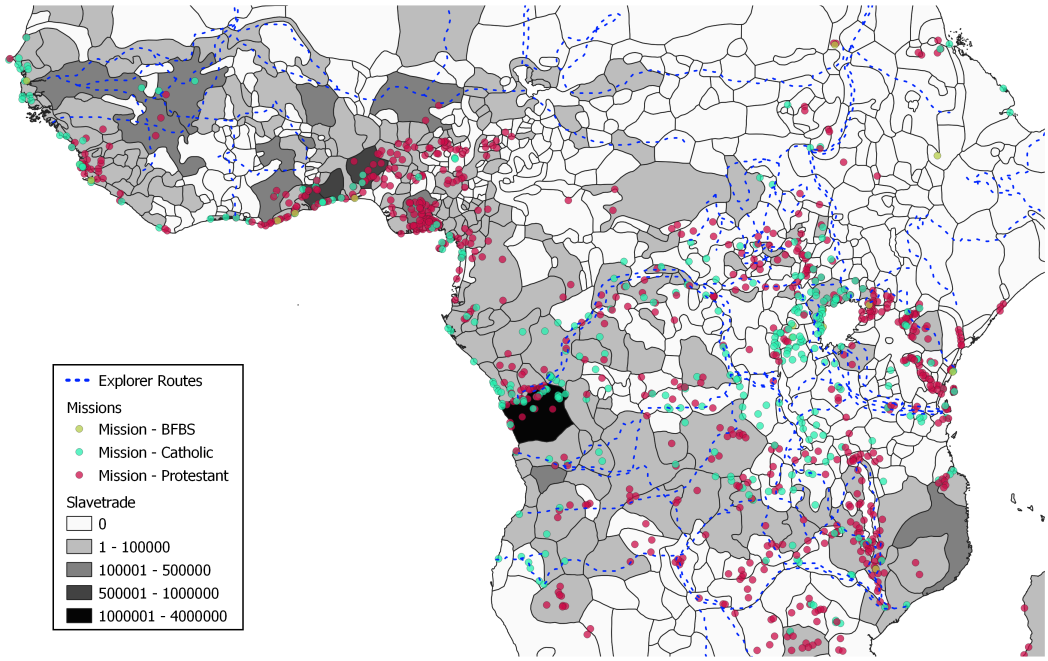
Figure 5: Slave trade, missions and explorer routes



Source: Own elaboration based on data sets of Nunn, N., & Wantchekon, L. (2011) and Nunn, N. (2010).

In the figures 6 and 7 we present the same map as in 5. In figure 6 we focus in Sub-Saharan region. What is striking about this map are the differences between the type of mission stations. While the Protestant stations are concentrated around the Gulf of Guinea, the Catholic missions are located around Lake Victoria. It is not seen that the Catholic missions have any effect on the reduction of the slave trade. Another strange point is the small number of mission stations in the Mozambique region where the slave trade has high values.

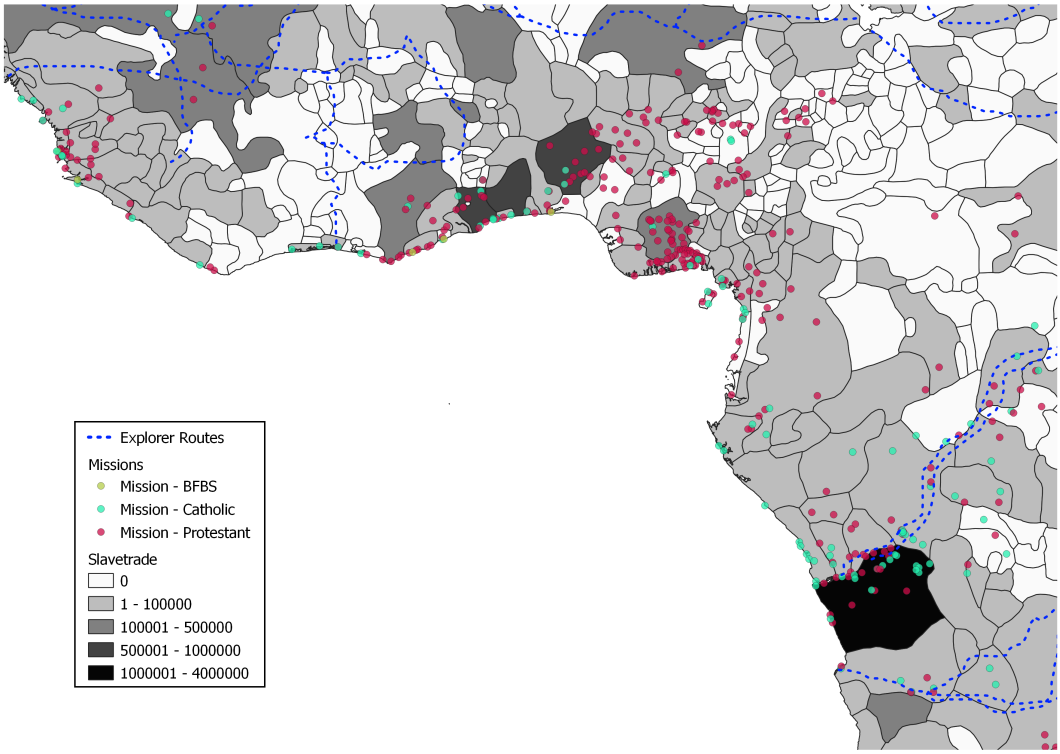
Figure 6: Slave trade, missions and explorer routes in Sub-Saharan Africa



Source: Own elaboration based on data sets of Nunn, N., & Wantchekon, L. (2011) and Nunn, N. (2010).

In figure 7, we focus in the Gulf of Guinea composed of the countries Liberia, Ivory Coast, Ghana, Togo, Benin, Nigeria, Cameroon (Ambazonia), Equatorial Guinea, Gabon, São Tomé and Príncipe and Republic of Congo. The map shows that a large proportion of missions are located around the Gulf of Guinea where there are no explorer routes and the slaves trade for these ethnic groups are high. The ethnic groups with the highest proportion of Protestant stations in the Gulf of Guinea are Ibo and Ibibio which have large slave trade values, 401.162 and 48.808 respectively.

Figure 7: Slave trade, missions and explorer routes in Gulf of Guinea



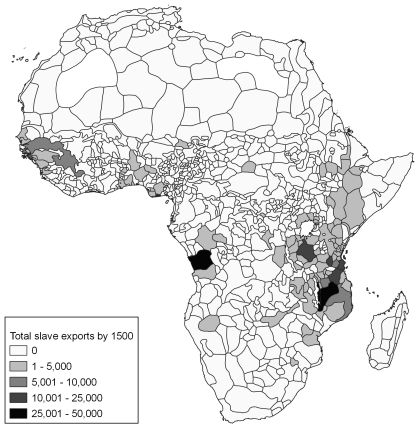
Source: Own elaboration based on data sets of Nunn, N., & Wantchekon, L. (2011) and Nunn, N. (2010).

Total slave exports by periods of time

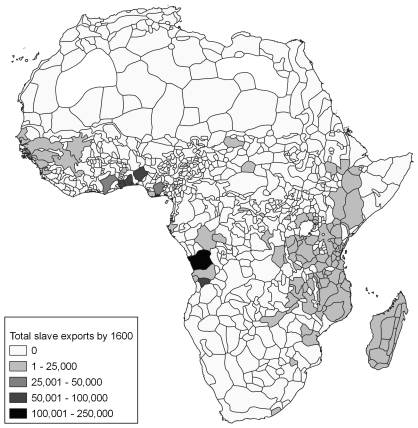
In this section, we show the same maps as in the first section, but now focusing on how the slave trade has changed since the beginning of the period analysed by the original authors. It should be remembered that what was done here was to add the number of slaves exported by destination, differentiating by time period.

What we can see in the four graphs is that, although a certain regularity is maintained, the intensity of the slave trade increased considerably in the 19th century. While the end of the 17th century did not reach a total of 250,000 slaves exported per century, the 18th and 19th centuries saw an exponential growth that reached almost 2 million slaves exported.

The zonal analysis also yields interesting data. While some regions maintained a constant flow of slaves, the temporal division shows that as the years went by, slave exports were made from further inland in Africa and no longer only from the coasts.

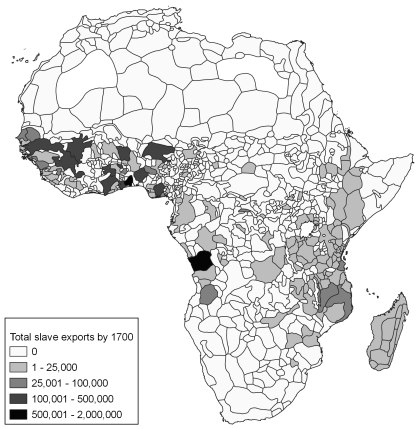


(a) Total slave exports 1400 - 1599

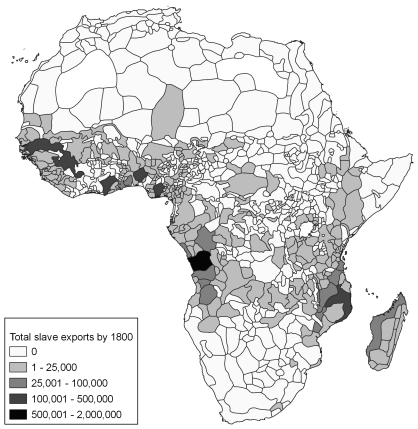


(b) Total slave exports 1600 - 1699

Source: Own elaboration based on data sets of Nunn, N., & Wantchekon, L. (2011).



(c) Total slave exports 1700 - 1799



(d) Total slave exports 1800 - 1899

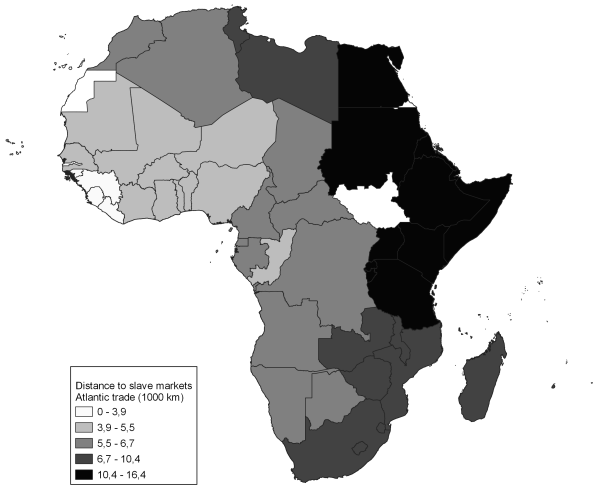
Source: Own elaboration based on data sets of Nunn, N., & Wantchekon, L. (2011).

Distance to slave trade, ruggedness and health facilities in sub-saharian Africa

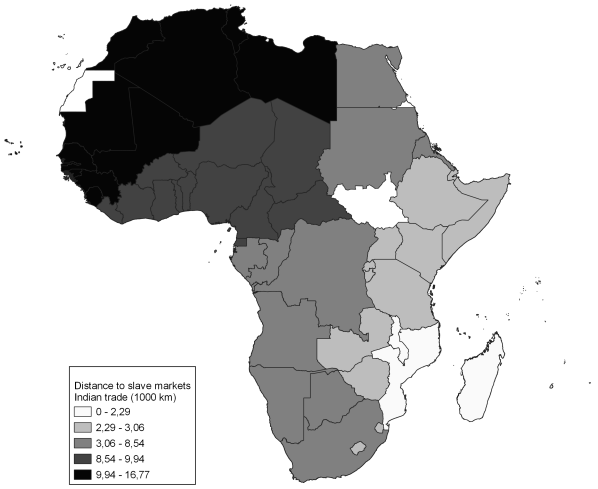
In this last section, we use data provided by Nunn Puga (2012) to show that distance to major slave export centers is correlated with slave exports and that difficulty on the ground is also correlated. In both cases, inversely. In addition, we use Ki-Data data to show that these today, regions with lower slave exports have more health centers[1].

In figure 8e we can see the distance to the slave posts that were heading towards the Atlantic. Measured in thousands of kilometers, we see that the farthest regions are those that have exported the fewest slaves to that destination. However, in contrast, some of these regions are the closest to the slave exports to the Indies, so they were affected on that side (figure 8f).

[1]https://data.kimetrica.com/dataset/african-health-facilities-shapefile/resource/e660298d-89d5-4456-921b-a5cdcb0bd553



(e) Distance to atlantic slave markets

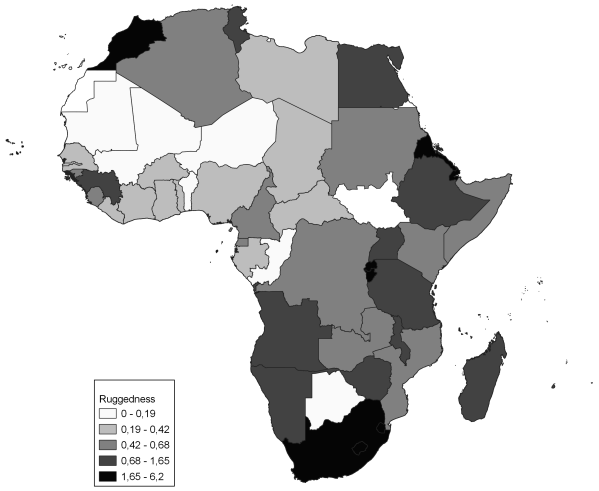


(f) Distance to Indian slave markets

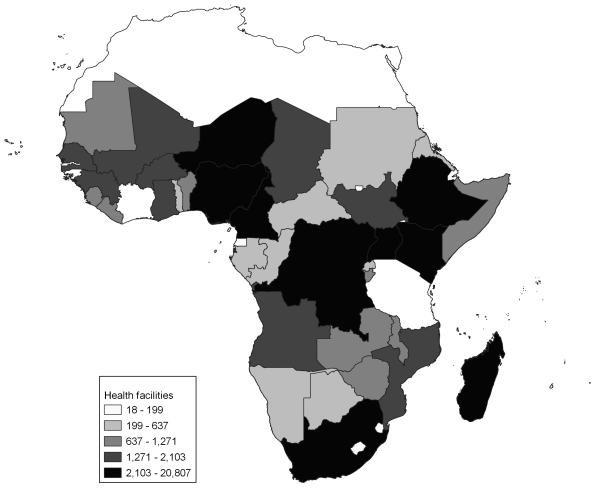
Source: Own elaboration based on data sets of Nunn, N. & Puga, D. (2012).

In Nunn's original work on the ruggedness of African terrain, we find several ways to measure it. In figure 8g we concentrate only on the original one to show that this also has an inverse relationship with the number of slaves exported. If we compare figures 8a, 8b, 8c and 8d with this figure 8g the relationship is clear. Southern Africa, with its rocky terrain, high altitude, and difficult to navigate at that time, has the lowest levels of slaves exported, despite being a point that could be very interesting for exports to both the Atlantic and the Indies.

But in addition, this Southern Africa is now one of the areas with the highest number of health facilities today. This emerges from cross-checking with Ki-Data data (figure 8h) where we see that this area reaches up to 20,000 health facilities, while the areas most affected by the slave trade rarely reach 1,000 health facilities[2].



(g) Ruggedness



(h) Number of health facilities

Source: Own elaboration based on data sets of Nunn, N. & Puga, D. (2012) and Ki-Data[3]

[2]Clarification: The data provided by Ki-Data includes only the sub-Saharan African zone.