Coup-Proofing via Capital Relocation

PPOL 6805 / DSAN 6750: GIS for Spatial Data Science

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Introduction

Several previous studies have found robust relationships between spatial properties of a country's **capital city** and that country's propensity for **conflict** and **misgovernance**.

Perceptions of this linkage also have an effect on "coup-proofing" decisions made by national governments. A recent BBC interview with Equatorial Guinea's President Teodoro Obiang, for example, highlighted this as a factor behind his decision to relocate the capital city:

> It's the remoteness of Oyala that makes it so appealing to President Obiang. In a rare interview he described how rebels had recently plotted a seaborne assault on his palace in the current capital, Malabo. 'We need a secure place for my government and for future governments. That's why we have created Oyala, to guarantee the government of Equatorial Guinea.' (Sackur 2012)

This case is far from exceptional, as an even more recent *Washington Post* article points out with respect to Myanmar's decision to move its capital from Yangon to Naypyidaw:

> Analysts have described the decision as motivated by a desire to secure the military's seat of power from any threat of protests or invasions. (Berger 2021)

Most of these studies, however, are based on observations of **conflict events**. In this study, we study the more fundamental variable of a capital's distance from the **population centroid** of the country.

Literature Review

Campante, Do, and Guimaraes (2019) analyzes the relationship between the location of a **capital city** and the degree of conflict and misgovernance in a given country. Their two key findings are that:

> Conflict is more likely to emerge (and dislodge incumbents) closer to the capital

and

> Isolated capitals are associated with misgovernance.

This first finding is illustrated in Figure 1

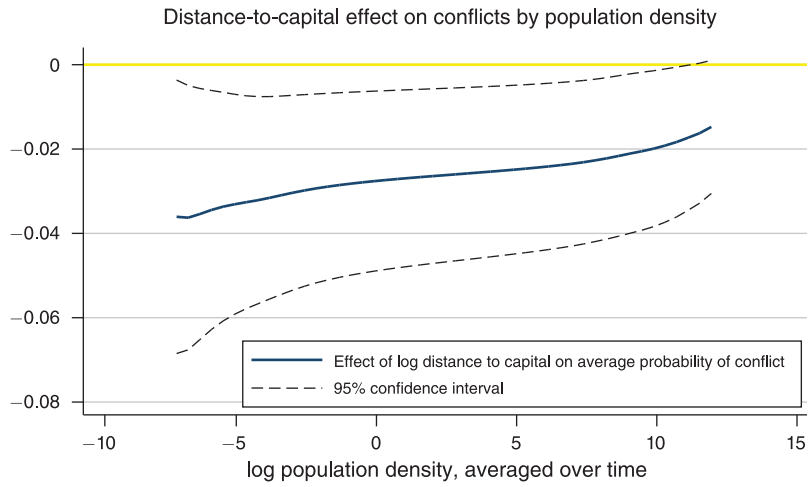


FIGURE 1. EFFECT OF LOG DISTANCE TO CAPITAL ON CONFLICTS AS A FUNCTION OF LOG POPULATION DENSITY

Figure 1

Methodology

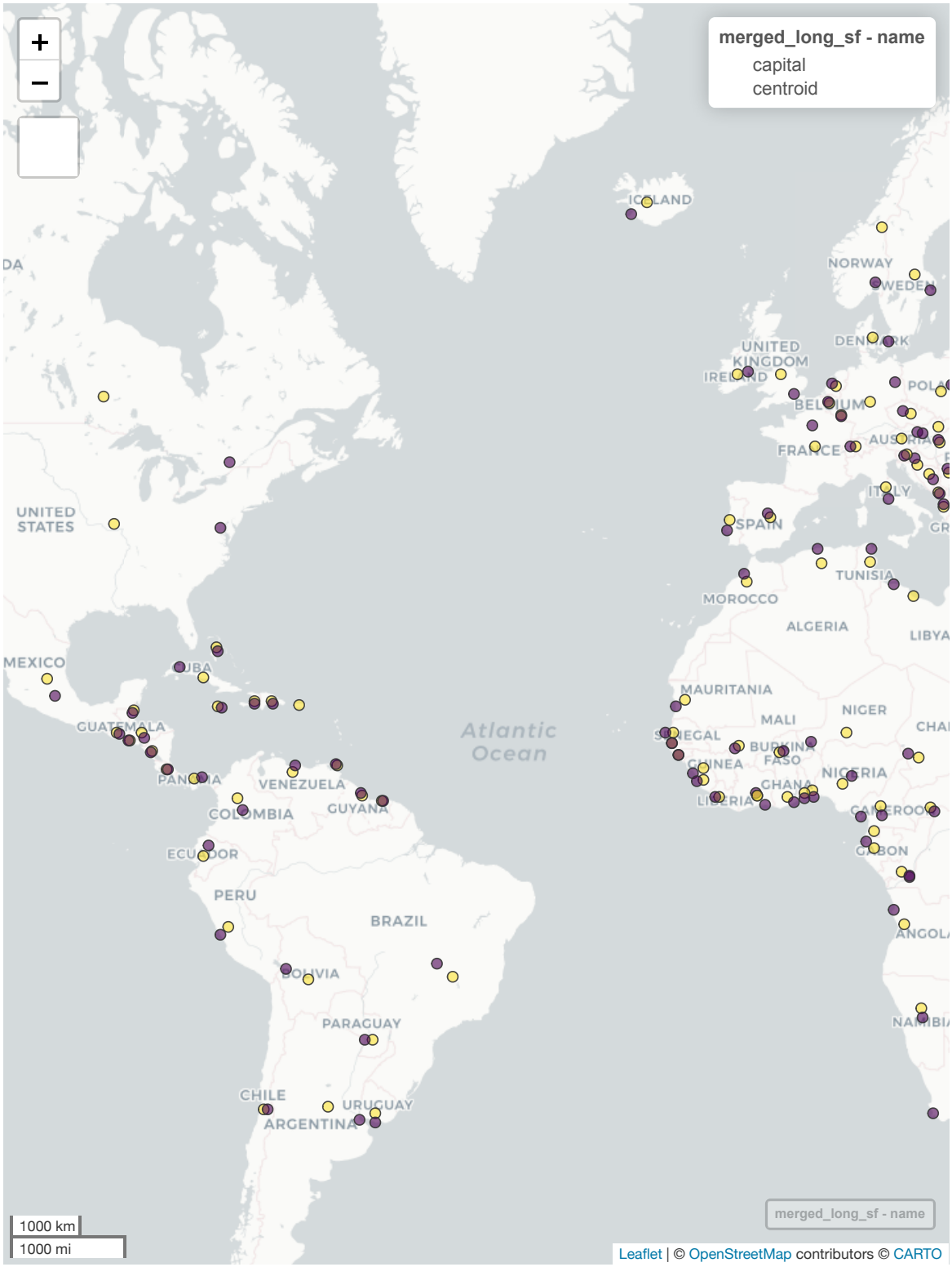
The **population centroids** we use herein might require some explanation, since the term "centroid" can be ambiguous.

Here, the population centroids are drawn from Hall et al. (2019)

Exploratory Data Analysis (EDA)

Here we plot the base GIS objects we're analyzing: the location of each **capital city** (in purple) and each **population centroid** (in yellow).

Source: Article Notebook

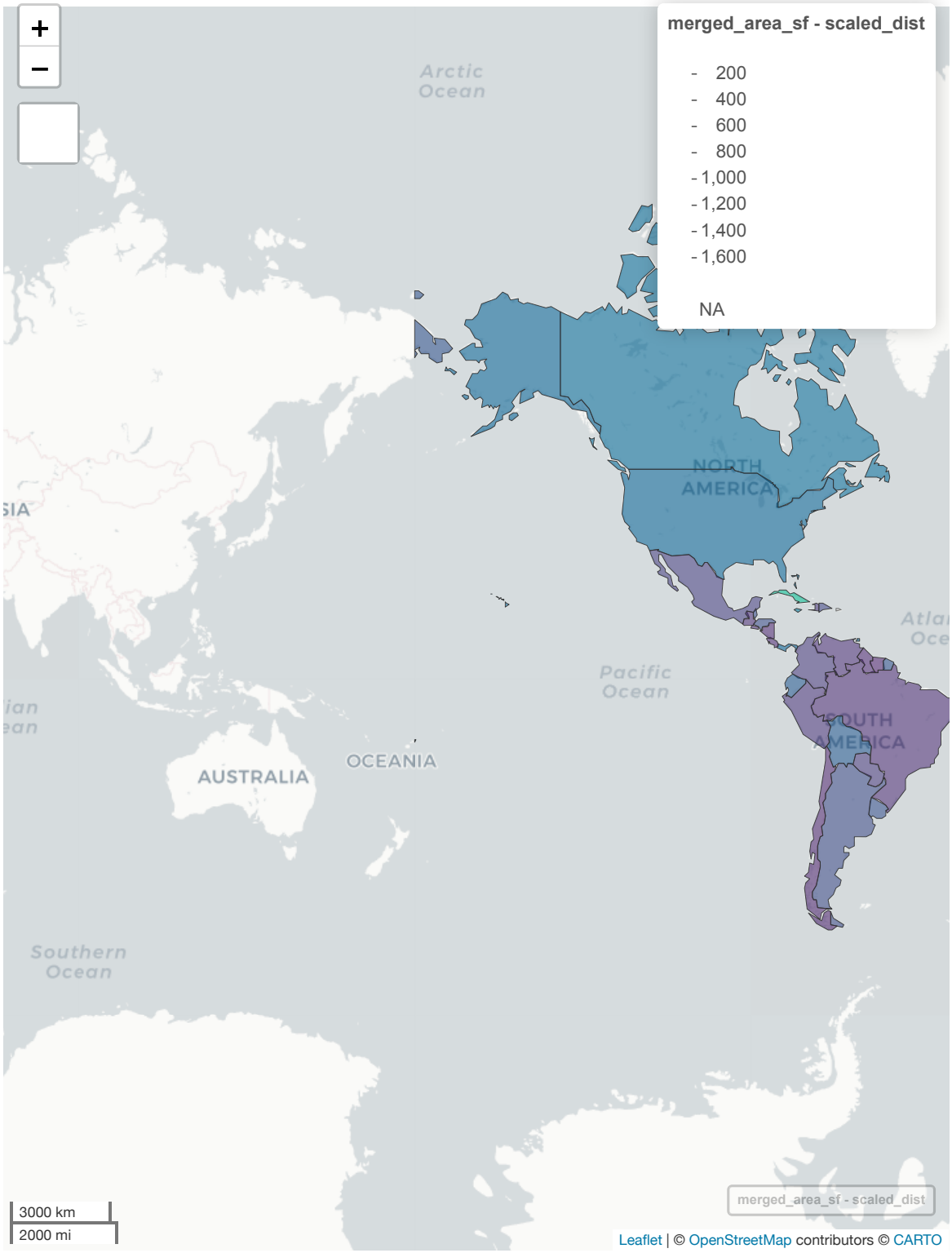

merged_long_sf - name
capital
centroid
ICELAND
NORWAY
SWEDEN
UNITED KINGDOM
IRELAND
DENMARK
BELGIUM
FRANCE
SPAIN
UNITED STATES
MEXICO
CUBA
GUATEMALA
PANAMA
VENEZUELA
COLOMBIA
GUYANA
ECUADOR
PERU
BRAZIL
BOLIVIA
PARAGUAY
CHILE
ARGENTINA
URUGUAY
MOROCCO
ALGERIA
TUNISIA
LIBYA
MAURITANIA
MALI
NIGER
SENEGAL
GUINEA
BURKINA FASO
GHANA
NIGERIA
LIBERIA
GABON
ANGOLA
NAMIBIA
Atlantic Ocean
1000 km
1000 mi
merged_long_sf - name
Leaflet | © OpenStreetMap contributors © CARTO

Source: Article Notebook

We then construct an **area-normalized** measure of capital-centroid distance $\text{dist}^{\mathsf{AN}}$, using the formula

$$\text{dist}_i^{\mathsf{AN}} = \text{dist}_i / \sqrt{\text{area}_i}.$$

A plot of this measure by country looks as follows:

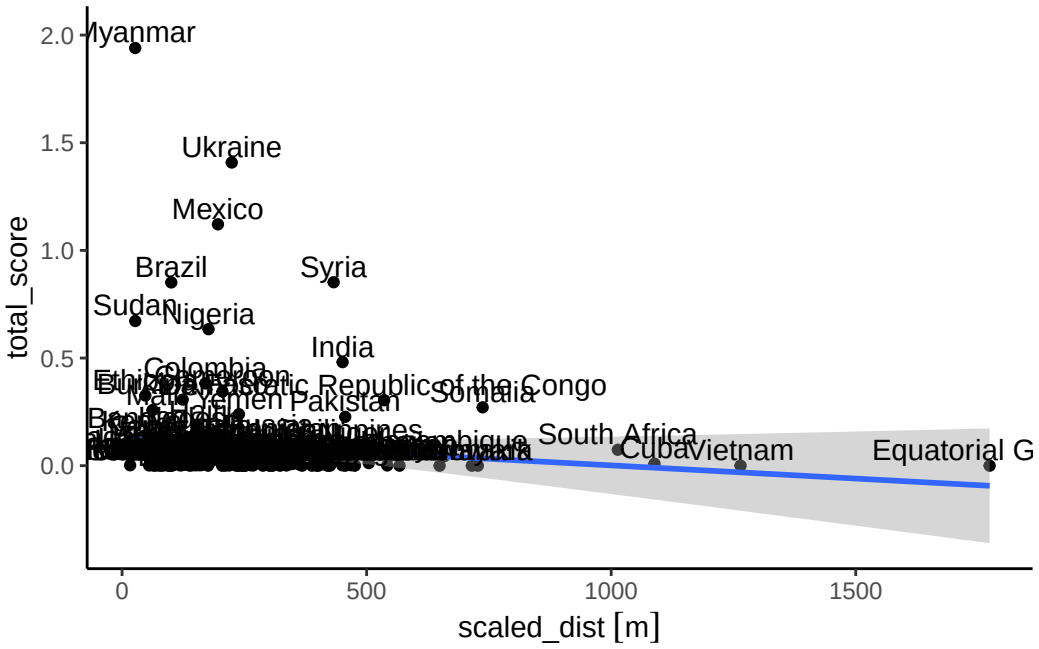

merged_area_sf - scaled_dist
- 200
- 400
- 600
- 800
- 1,000
- 1,200
- 1,400
- 1,600
NA
Arctic Ocean
NORTH AMERICA
Pacific Ocean
OCEANIA
AUSTRALIA
Southern Ocean
3000 km
2000 mi
merged_area_sf - scaled_dist
Leaflet | © OpenStreetMap contributors © CARTO

Source: Article Notebook

Hypothesis Testing (Regression)

geounit	iso_a3	OBJECTID	ID_0	NAME_ENGLI	OUTNAME	NAME_AL	AREA	dist	area	scaled	to-dist	geometry	centroid	capital
Tanzania	TZA	227	227	Tanzania	0	Dar es Salaam	324758 [m]	88586 [m]	345.058	80007		MULTIPOLYGON (((33.90371 -0...	POINT (36.5813 -5.612844)	POINT (39.2664 -6.798067)
Canada	CAN	42	42	Canada	0	Ottawa	1410818 [m]	778870 [m]	705.892	02001		MULTIPOLYGON (((-122.84 49,...	POINT (-92.673 51.33108)	POINT (-75.70196 45.41864)
United States of America	USA	244	244	United States	0	Washington, D.C.	1227419 [m]	114426 [m]	826.269	022		MULTIPOLYGON (((-122.84 49,...	POINT (-91.24719 39.43566)	POINT (-77.01136 38.9015)
Kazakhstan	KAZ	117	117	Kazakhstan	0	Nur-Sultan	2270742 [m]	699708 [m]	08.200	9010		MULTIPOLYGON (((87.35997 49...	POINT (69.7252 49.45229)	POINT (71.42777 51.18113)
Uzbekistan	UZB	246	246	Uzbekistan	0	Tashkent	1680114 [m]	410623 [m]	33.098	85005		MULTIPOLYGON (((55.96819 41...	POINT (67.77264 40.30358)	POINT (69.26882 41.30383)
Papua New Guinea	PNG	175	175	Papua New Guinea	0	Port Moresby	2898874 [m]	528663 [m]	30.770	4025		MULTIPOLYGON (((141.0002 -2...	POINT (146.2921 -7.014699)	POINT (147.1925 -9.464708)

Source: Article Notebook



Source: Article Notebook

Discussion

Conclusion

Our evidence indicates that the spatial dynamics of **conflict** differ from the spatial dynamics of **misgovernance**. Whereas

Berger, Miriam. 2021. "Myanmar's Military Built a New Capital as a Haven for Power. Other Countries Have Tried That, Too." *Washington Post*, February 6, 2021.

Campante, Filipe R., Quoc-Anh Do, and Bernardo Guimaraes. 2019. "Capital Cities, Conflict, and Misgovernance." *American Economic Journal: Applied Economics* 11 (3): 298–337.

Hall, Ola, Maria Francisca Archila Bustos, Niklas Boke Olén, and Thomas Niedomysl. 2019. "Population Centroids of the World Administrative Units from Nighttime Lights 1992-2013." *Scientific Data* 6 (1): 235.

Sackur, Stephen. 2012. "Equatorial Guinea: Obiang's Future Capital, Oyala." *BBC News: Magazine*, December 14, 2012.