

# Coup-Proofing via Capital Relocation

PPOL 6805 / DSAN 6750: GIS for Spatial Data Science

Jeff Jacobs

## 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

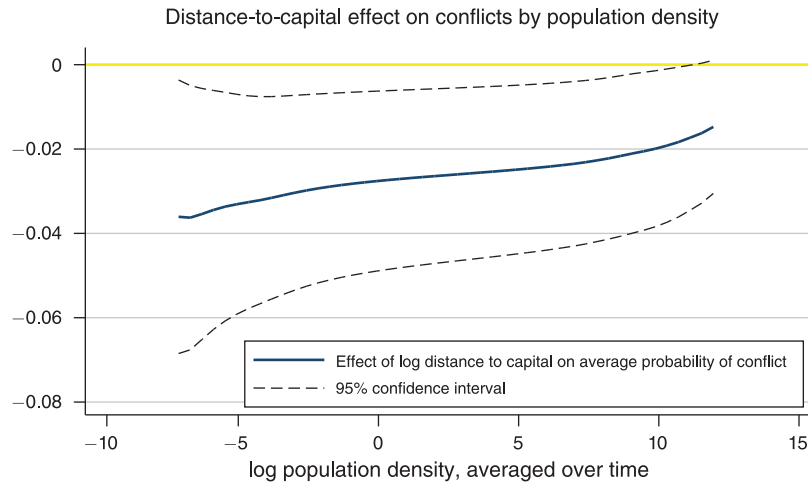


FIGURE 1. EFFECT OF LOG DISTANCE TO CAPITAL ON CONFLICTS AS A FUNCTION OF LOG POPULATION DENSITY

Figure 1

## Methodology

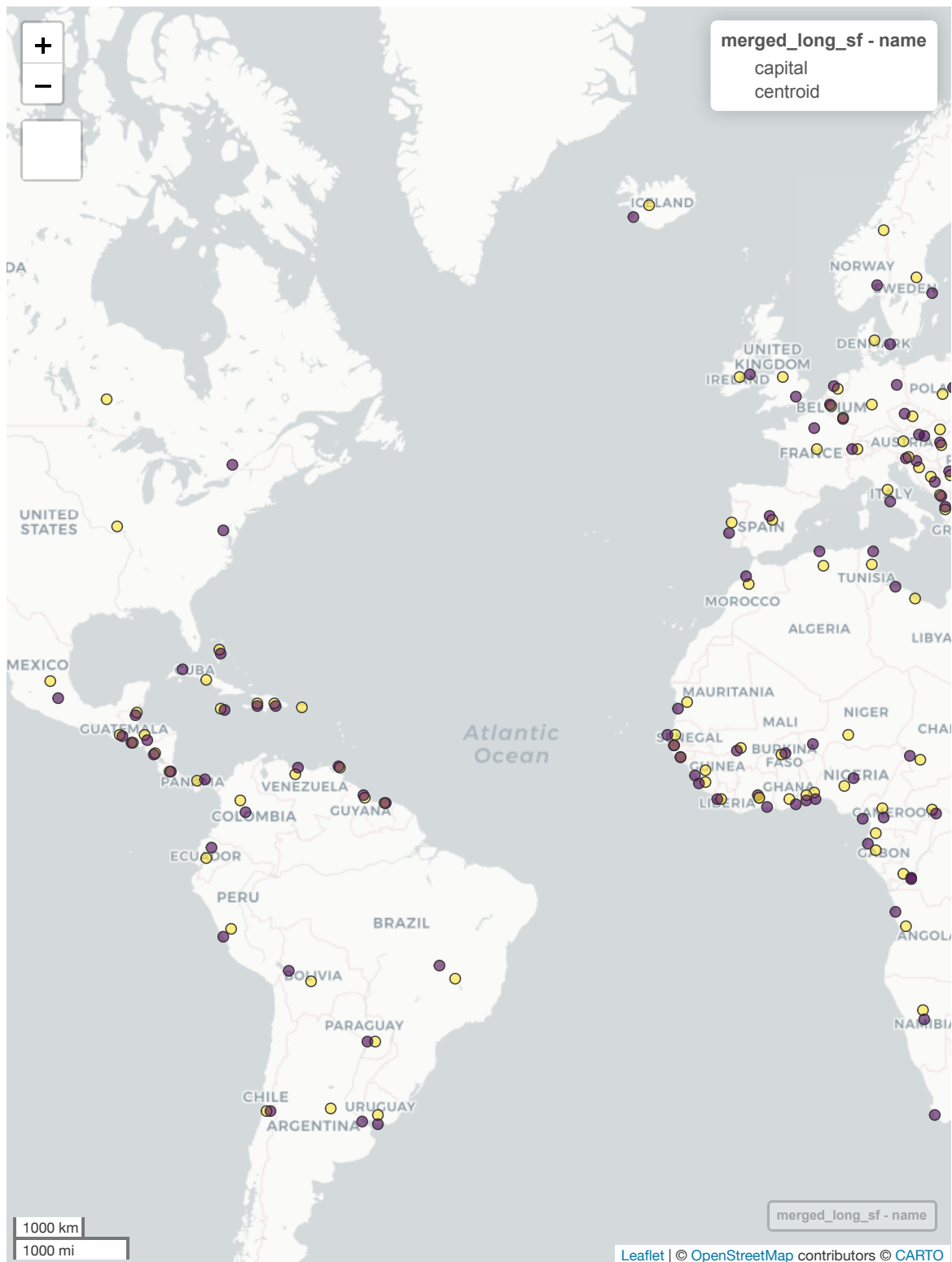
The **population centroids** we use herein might require some explanation, since the term “centroid” can be ambiguous.

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](#)

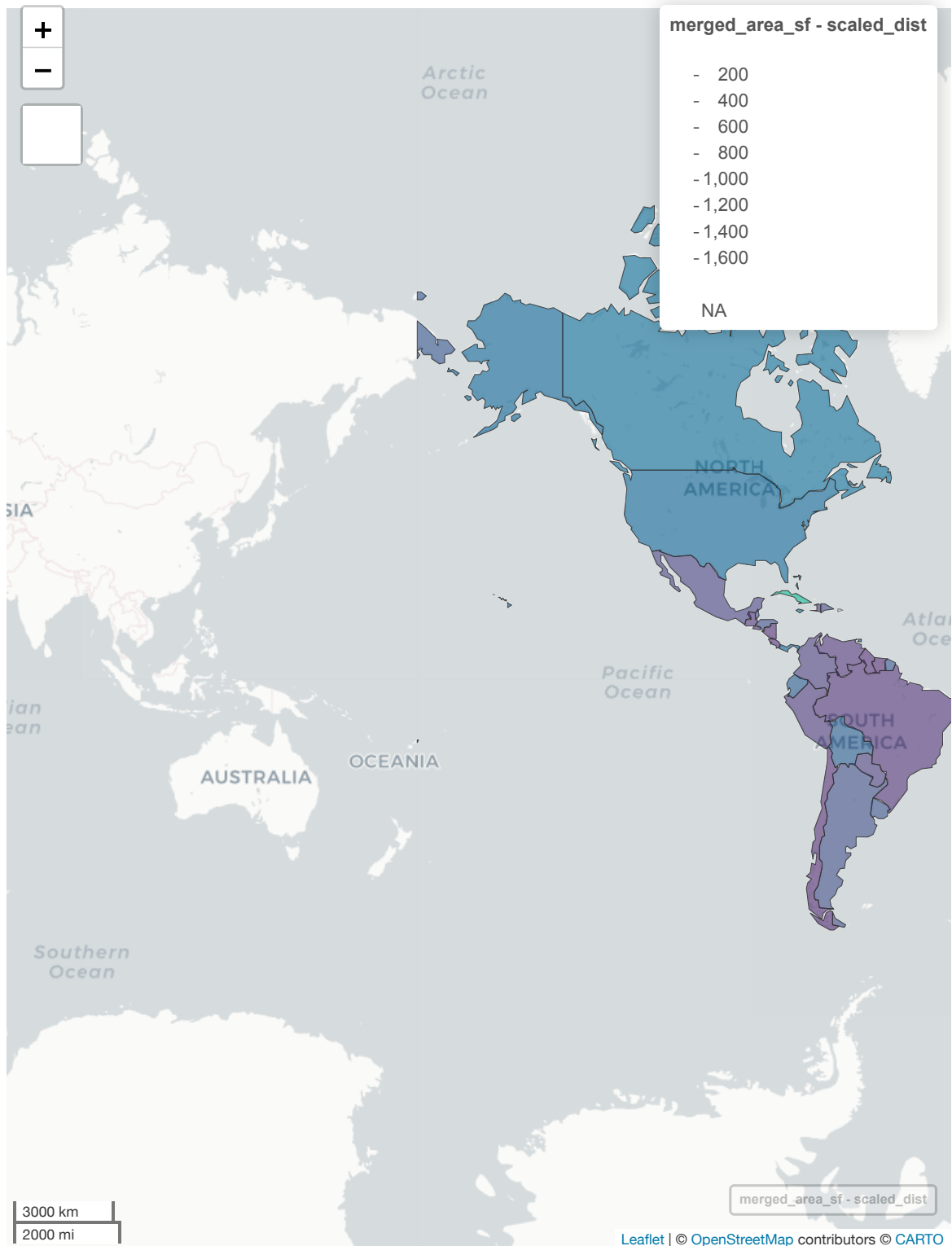


Source: [Article Notebook](#)

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

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

A plot of this measure by country looks as follows:

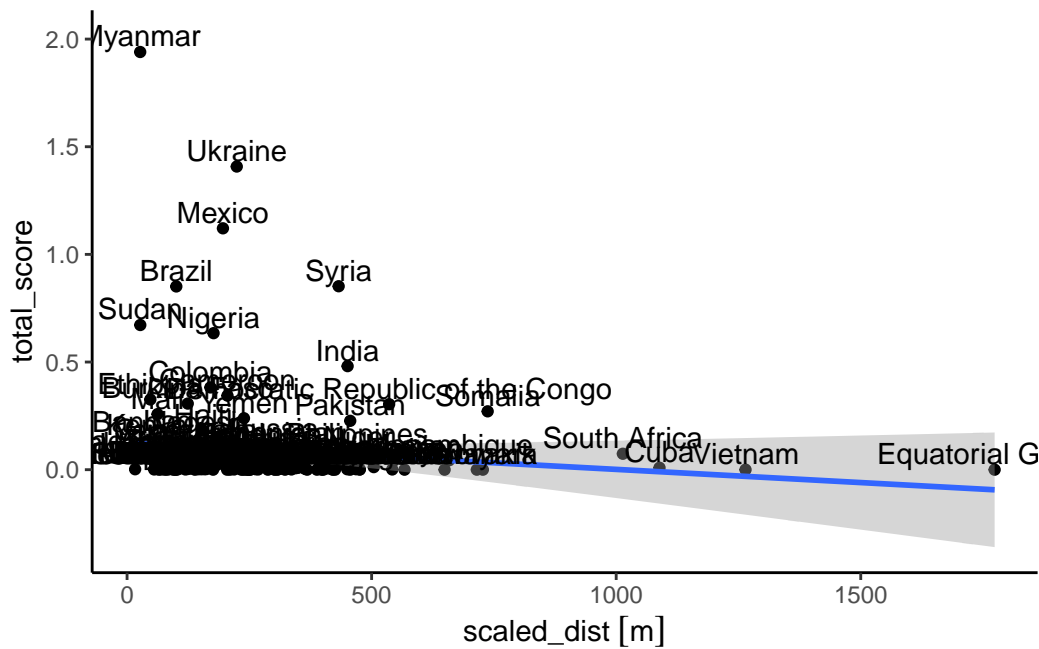


Source: [Article Notebook](#)

## Hypothesis Testing (Regression)

geounit	iso_3166_2	JEC- ID	OB- ID	NAME_EN- GLI	OUTNAME	area	dist	area scaled	to- distance	geome- type	cen- troid	capital
Tanza- nia	TZA	227	227	Tan- za- nia	0 Dar es Salaam	3247588	185804	15.058007	MULTI- POLY- GON	POINT (36.5813 - ((33.903715.612844)	POINT (39.2664 - 6.798067)	
Canada	CAN	42	42	Canada	0 Ot- tawa	1410818	788705	15.890201	MULTI- POLY- GON	POINT (- 92.673 51.33108)	POINT (- 75.70196 45.41864)	
United States of Amer- ica	USA	244	244	United States	0 Wash- ing- ton, D.C.	1227419	147425	15.826922	MULTI- POLY- GON	POINT (- 91.24719 39.43566)	POINT (- 77.01136 38.9015)	
Kaza- khstan	KAZ	117	117	Kaza- khstan	0 Nur- Sultan	2270742	699708	15.200910	MULTI- POLY- GON	POINT (69.7252 49.45229)	POINT (71.42777 51.18113)	
Uzbek- istan	UZB	246	246	Uzbek- istan	0 Tashkent	1680114	106253	15.098505	MULTI- POLY- GON	POINT (67.77264 40.30358)	POINT (69.26882 41.30383)	
Papua New Guinea	PNG	175	175	Papua New Guinea	0 Port Moresby	2898874	152863	15.770425	MULTI- POLY- GON	POINT (146.2921 - ((141.00027.014699)	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. <https://www.washingtonpost.com/world/2021/02/06/myanmars-military-built-new-capital-haven-power-other-countries-have-tried-that-too/>.

Campante, Filipe R., Quoc-Anh Do, and Bernardo Guimaraes. 2019. “Capital Cities, Conflict, and Misgovernance.” *American Economic Journal: Applied Economics* 11 (3): 298–337. <https://doi.org/10.1257/app.20170111>.

Hall, Ola, Maria Francisca Archila Bustos, Niklas Boke Olén, and Thomas Nedomysl. 2019. “Population Centroids of the World Administrative Units from Nighttime Lights 1992-2013.” *Scientific Data* 6 (1): 235. <https://doi.org/10.1038/s41597-019-0250-z>.

Sackur, Stephen. 2012. “Equatorial Guinea: Obiang’s Future Capital, Oyala.” *BBC News*, December. <https://www.bbc.com/news/magazine-20731448>.