Terrorism in France: Mapping the Proximity of Terrorist Attacks to Communes Vulnerable to Radicalization

This project identifies the spatial relationship between areas in France that are vulnerable to radicalization to terrorism (by commune, or the 05 Level) and communes with the most attacks. Understanding which parts of France are most vulnerable to radicalization will allow authorities to concentrate counterterrorism and counter-extremism efforts in a more targeted, proactive, and effective manner.

The following spatial questions are addressed:
1. Which communes in France are most vulnerable to radicalization?
2. Where have the majority of terrorist attacks in France occurred between 2013-2017?
3. What is the average distance between terrorist attacks in France (2013-2017) and the communes most vulnerable to radicalization?

**METHODOLOGY**

This project uses a vulnerability analysis to determine which communes in France are the most vulnerable to radicalization. The factors that figure into the vulnerability analysis include the following: percentage of male population, percentage of foreign population, percentage of immigrant population, percentage of population aged 25-54, percentage of population without a university degree, percentage of unemployed population, and median household income in euros. The age and education variables were weighted at 0.5, whereas the other variables were weighted at 1.

To conduct the proximity analysis, the Euclidean distance tool was used to calculate a distance raster between the center of each commune and the point location of the nearest terrorist attack. The Zonal Statistics as Table tool provided the distance statistics.

**FINDINGS AND LIMITATIONS**

The vulnerability analysis indicates that the most vulnerable communes are located in metropolitan Paris, in the Aquitaine-Limousin-Poitou-Charentes region (in the southwestern quadrant of the country), on the west coast of the Brittany region, along the French Riviera, and along the eastern coast of the island of Corsica. The majority of terrorist attacks between 2013-2017 are similarly located in those areas. The main limitation is that INSEE, France’s national statistics agency, does not have data for all of the communes. Also, literature on terrorism does point to any conclusive factors of radicalization, so there may be better factors to examine than those considered in this analysis.

Despite the clustering of vulnerable communes near attack locations, there is no correlation between a commune’s vulnerability level and its average distance to the nearest terrorist attack ($R^2$ is nearly zero). In fact, communes with a very low vulnerability to radicalization appear to be the closest, but that is likely due to the extremely small sample size.

**CONCLUSIONS**

Because the vulnerable communes appear to visually align with the locations of terrorist attacks in France, but the data do not corroborate that correlation, the next step would be to conduct a cluster analysis. A cluster analysis would look at the density of vulnerable communes in relation to the attack locations, and may offer more insight into the true spatial relationship between terrorist attacks and vulnerable areas.

**ADDITIONAL INFORMATION**

Cartographer: Chloe Logan
Class: DHP P207: GIS for International Applications
Date: December 15, 2018 (fall 2018)
Sources: ESRI, INSEE, OpenStreetMap France, START Global Terrorism Database
Projection: WGS 1984 UTM Zone 31N