Mapping voter preference
Spatial clusters in Taiwan’s 2014 local elections

In November 2014, Taiwan’s 23 million people elected a range of local leaders: governors, mayors, and councilors. These elections were a victory for the Democratic Progressive Party (DPP), historically the opposition party in Taiwanese politics. If this trend continues, the DPP may win the 2016 presidential and legislative elections. Because the DPP is pro-independence, its election would upset relations in the Taiwan strait.

This project examines voter turnout for the DPP, considering whether, where, and why any statistically unusual clusters of DPP support exist in Taiwan.

Outlier of high values: geographic barriers

Cluster of high values: geographic barriers

Cluster of low values: geographic barriers

If not geography, then what?

I tested the impact of demographic factors on support for the DPP.

Methodology

I collected demographic data from the 2010 Taiwanese Census, and used Stata to run an ordinary least squares (OLS) regression. Since the Breusch-Pagan test for heteroskedasticity returned a high value of 20.9, I used robust standard errors. I considered using a spatial regression model to account for spatial autocorrelation, but the Lagrange multipliers for both lag and error errors. I considered using a spatial regression, but since support for a political party is a personal concept, I looked for factors that might influence the spread of ideas among humans. I first considered how geography could help or hinder the transmission of ideas.

Barriers and Links

The three maps to the left show each area highlighted in detail. I expected the outlier, on the left, to be entirely surrounded by physical barriers. Similarly, I expected the two clusters to have few barriers on the inside but numerous barriers surrounding them. This is not exactly what I found. The outlier, Daxi district, is indeed surrounded on three sides by rivers, lakes, and mountains. Moreover, the district itself is split by a river and a ridge running through it, so that only a third of the district is connected to the more populous parts of Taoyuan county by expressways and railroads. In this case, geography may explain why people in Daxi district voted for the DPP in high numbers, while their neighbors did not.

However, the impact of geography in the two clusters was less clear. Rivers, which were barriers in the outlier, may act as links in the clustered areas. Transportation lines were like manmade rivers, connecting some places while cutting others off. Although mountainous areas seemed to predict where clusters will end, the right-hand cluster in Keelung City extends across a mountain ridge to Ruifang district. In contrast, but equally surprising, was the lack of clear barriers at the southeastern of the center cluster. The cluster ends abruptly in the center of Taipei City—a populous, flat area that is well suited to the travel of ideas.

Clearly something other than geography is at work in determining the extent of political support.