

Rating **Service Delivery** in the Federal Depository Library Program

Using data from the three most recent [FDLP Biennial Surveys](#), I used statistical methods to create a scoring system for FDLP libraries in the Lower 48 United States. These service delivery scores can be used to compare relative performance between different depositories and identify regions that are struggling and in need of aid.

The Biennial Survey

FDLP coordinators should be familiar with the FDLP Biennial Survey. It's the mechanism by which we report the state of our depositories to GPO.

I used the 2017, 2015, and 2013 Biennial Surveys as my data source for this analysis. I chose questions from those surveys that directly related to service delivery and institutional investment. Questions like...

"Do you find that depository staffing is adequate to fulfill basic depository responsibilities?"

"How much of your tangible collection would you estimate is fully cataloged?"

I chose nine questions to analyze, which together produced 18 different variables. To normalize these data, I converted all responses into numerical values that corresponded with whether the responses implied negative or positive service delivery.

Not all questions had equal relevance to service delivery. To properly weight the causal effect of each question and generate a cumulative score that was representative of overall service delivery and investment, I used a statistical formula called [Principle Component Analysis](#).

Principle Component Analysis (PCA)

PCA is a method for measuring the effect of a multitude of variables on a single outcome. PCA compares the overall degree of variance in a distribution with the variance of an individual variable in that distribution. In doing so, it provides an indication of how much of the distribution's variation might be attributed to the individual variable. In effect, it produces a weighting mechanism that can be factored with each variable in the distribution to calculate that variable's predictive power.

Using the cumulative scores from my PCA calculation as an overall measure, I can plot service provision for each FDLP depository using R. I merged longitude and latitude coordinates with each depository's zip code to map the points geographically.

