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Using Data to Assist Redistricting

- General comments
- Incorporating a measure of communities of interest
- Using an algorithm to simulate districts
- Questions and discussion

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General Comments

- Redistricting is a contest of values that often conflict
- Public comment on a plan is helpful for a transparent process
- Changing the number of districts increases the complexity of the process

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Communities of Interest Criteria

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Communities of Interest Criteria

- A geographically-bound population with some sort of common characteristics within a multi-faceted set of indicators
  - The first example of which comes from California, where the special masters in the 1970 redistricting cycle created a definition referring to “social and economic interests common to a population of an area” and further gave examples of such interests: “those common to an urban area, a rural area, an industrial area, or an agricultural area, and those common to areas in which the people share similar living standards, use the same transportation facilities, have similar work opportunities, or have access to the same media of communication relevant to the election process” (See *Legislature v. Reinecke* 1973).

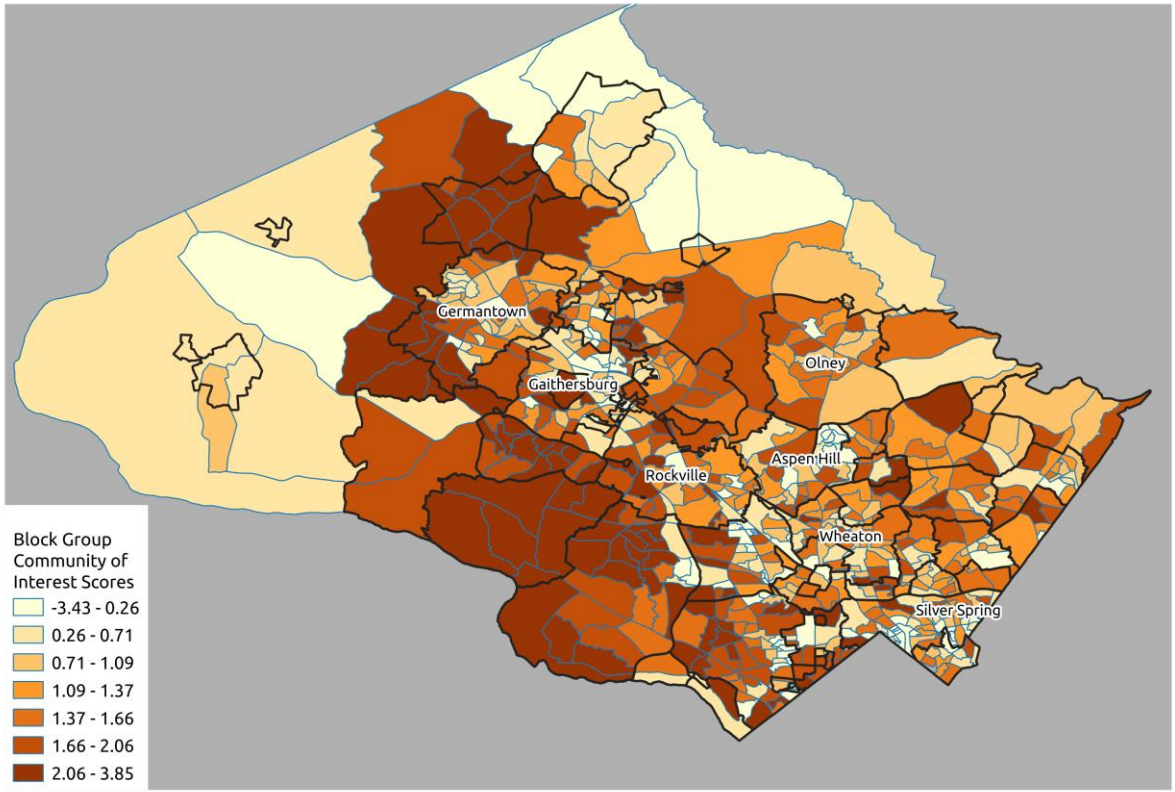
Communities of Interest Criteria

- A geographically-bound population with some sort of common characteristics within a multi-faceted set of indicators
  - A federal court case out of Colorado in the 1980 cycle gives a similar definition of the term, “communities of interest represent distinctive units which share common concerns with respect to … geography, demography, ethnicity, culture, socio-economic status, or trade” (See *Carstens v. Lamm* 1982).

Communities of Interest Criteria

- I apply a factor analysis to a set of American Community Survey data (2019, 5-year vintage) to distill a summary statistic score for each block group in Montgomery County
  - I follow the research design of Stephanopoulos (2012) “Communities and the California Commission” published in *Stanford Law & Policy Review*
  - Survey items include: population density, median age and household income, average household size, family structure, racial and ethnic composition, commute patterns, educational attainment, home ownership, occupational category, and unemployment rate

Communities of Interest Criteria



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Communities of Interest Criteria

- How communities of interest can inform the process
  - Guidance on drawing districts in order to preserve communities within the county
  - Suggestions for ideal locations for public comment hearings in order to solicit input from a diverse set of residents
    - Germantown and/or Gaithersburg in the northern portion of the county
    - Rockville, Aspen Hill, and/or Olney in the center/eastern portion of the county
    - Wheaton and/or Silver Spring in the southern portion of the county

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Simulating District Maps

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Redistricting Simulations

- Computer simulations can provide guidance on reasonable redistricting outcomes
  - Judge Easterbrook in *Gonzalez v. City of Aurora* (2008)
    - "Today, however, computers can use census data to generate many variations on compact districts with equal population … Redistricting software can not answer all hard questions, but it provides a means to implement a pure effects test without demanding proportional representation."
  - Some colleagues and I have developed an algorithm to draw a set number of districts that are contiguous and population balanced based on block groups.
    - Haas et al. (2020) "Seed-Fill-Shift-Repair: A redistricting heuristic for civic deliberation" *PLOS One*

Demographics by Race or Ethnicity

Population	2010 ACS	2019 ACS
White	51%	43.8
Non-White	49	56.2
Black	16.5	17.9
Latino	16	19.5
Asian	13.7	14.7

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Demographics of Simulated Districts

Group	Number of Districts	Mean Population	Minimum	Maximum
White	4,200	43.9%	22.2	72.5
Non-White	4,200	56.1	27.5	77.8
Black	4,200	17.9	4.0	38.8
Latino	4,200	19.5	7.1	38.5
Asian	4,200	14.7	5.9	26.5

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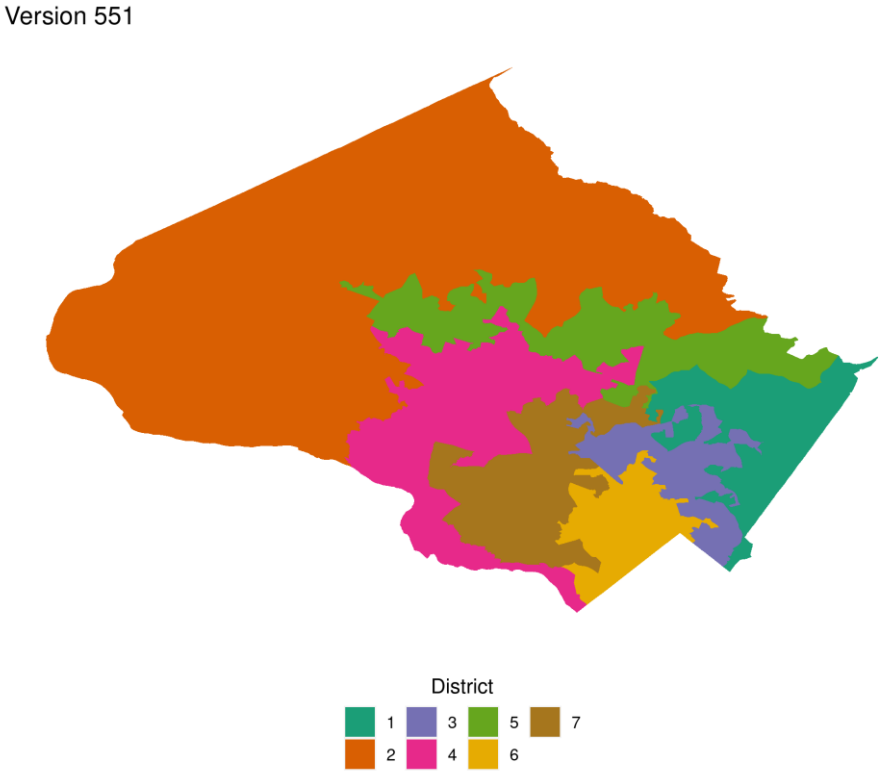
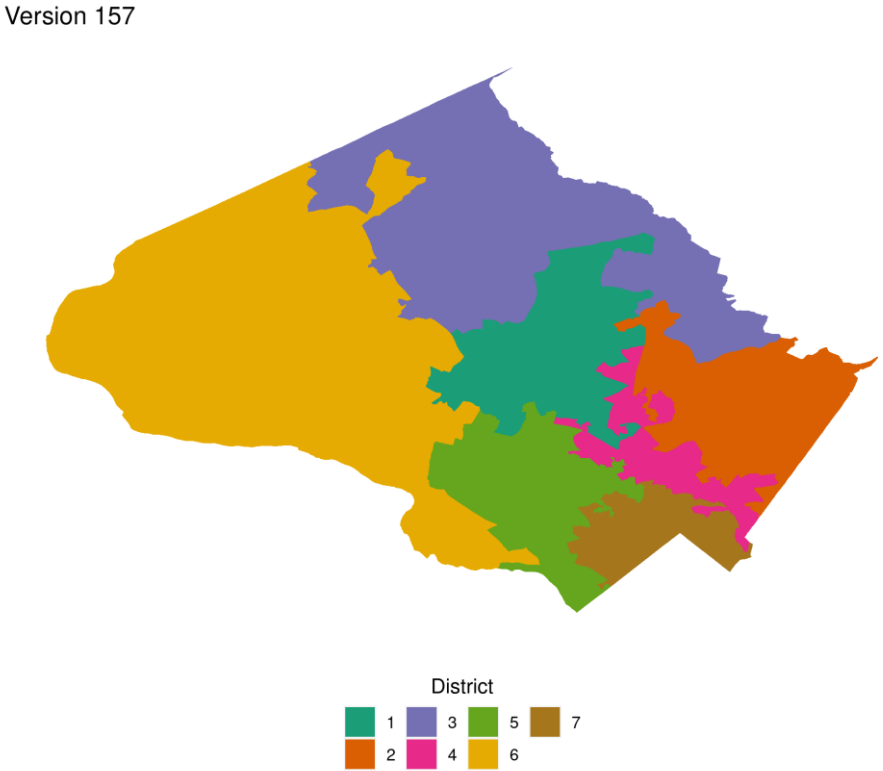
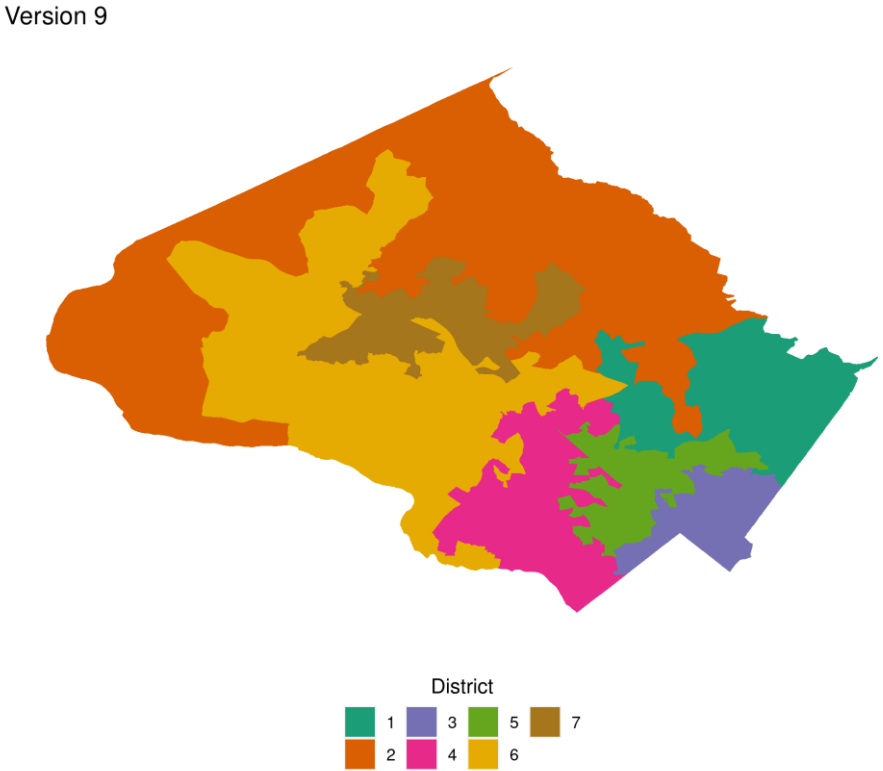


District 1 in this map is 38.7% Black, 21.2% Latino, and 12.4% Asian for a non-White population of 76.1%



District 4 in this map is 38.5% Latino, 18.5% Black, and 10.6% Asian for a non-White population of 71.7%.



District 6 in this map is 26.5% Asian, 10.7% Black, 9.5% for a non-White population of 50.6%.