The Huntinton-Hill Method

Lecture 19
Section 4.1

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Outline

The Huntington-Hill Method

- The Huntington-Hill method was passed into law in 1941 as the method to be used every 10 years thenceforth.
- It is the same as Webster's method except that it does not use 0.5 as the cutoff for rounding.
- Instead, it computes a cutoff based on the upper and lower quotas.

The Huntington-Hill Method

Definition (The Huntington-Hill Method)

The Huntington-Hill method uses the lower quota L and the upper quota U to compute a cutoff for rounding. Otherwise, it is the same as Webster's method. The cutoff for each state is $c = \sqrt{LU}$.

- Find the standard quotas for each state, using each state's cutoff c.
- Adjust the SD up or down to make the modified standard quotas add up to M.

- The Huntington-Hill method makes it somewhat more likely that the standard quotas for smaller states will be rounded up.

Outline

Example – VA, NC, MD, WV

Example (Example – VA, NC, MD, WV)

- The populations of VA, NC, MD, and WV are $8.00, 9.54, 5.77$ and 1.85 million people, respectively.
- The total number of seat apportioned to those states is 35.
- Use the Huntington-Hill method to determine how many seats each state should get.

The Huntington-Hill Method (Full Story)

- The Huntington-Hill method does not really use guesswork.
- Initially, every state gets $q = 1$ representative (as required by the Constitution).
- Divide each state's population by $D = \sqrt{q(q+1)}$.
- The state with the largest quotient gets one more seat, so add 1 to its quota q.
- Repeat the previous 2 steps until all the seats have been apportioned.

Example

Example (Example)

- The populations of three states are $3, 7$ and 9 million people, respectively.
- The total number of seat apportioned to those states is 7.
- Use the Huntington-Hill method to determine how many seats each state should get.

Outline

Assignment

Assignment

- The programs `HuntingtonHillMethod.exe` and `HuntingtonHillMethod-US.exe` are available at `http://people.hsc.edu/faculty-staff/robbk/Math111/Programs`.