

D4 Gerrymandering and Solutions

Group Activities

1. Azavea, a data analytics organization, has calculated the efficiency gap for all 50 states. We will first look at the infographics together.

<https://www.azavea.com/blog/2017/07/19/gerrymandered-states-ranked-efficiency-gap-seat-advantage/>

2. You have just been hired as consultants to your state legislature in the re-districting of the state. To assess the current map below, tally the voters and calculate the efficiency gap.

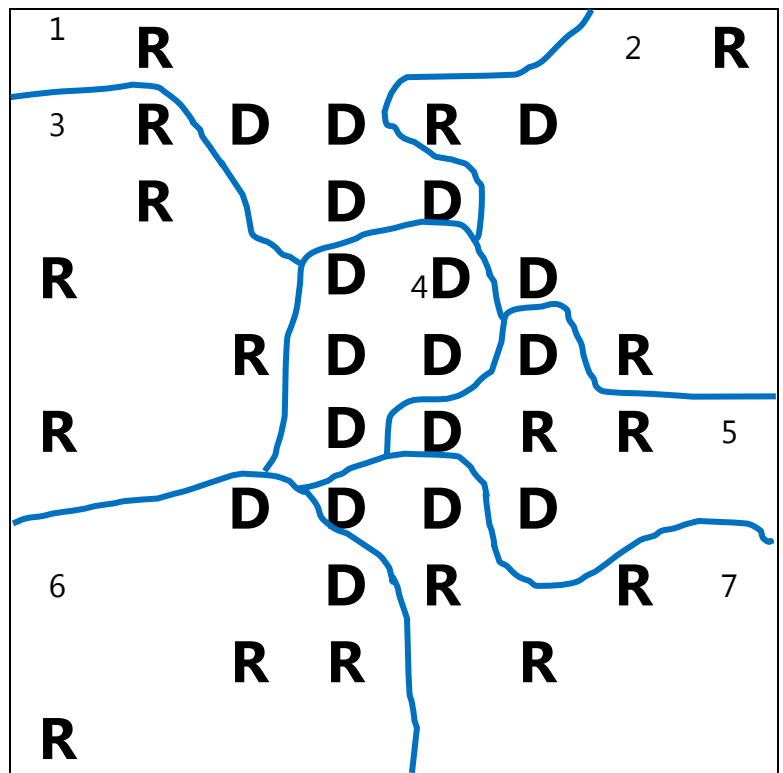
Election Results:	District	D Votes	R Votes	D Surplus or Wasted Votes	R Surplus or Wasted Votes
Democrats win	1				
_____ seats	2				
	3				
	4				
Republicans win	5				
_____ seats	6				
	7				
	Total				

Efficiency Gap

$$\frac{\text{Party A Wasted Votes} - \text{Party B Wasted Votes}}{\text{Total Votes}}$$

3. Calculate the percentage of voters that each seat represents.

4. Compare the efficiency gap with the percentage for each seat. Is the efficiency gap worth less than one seat or more than one? How many seats?



5. Is this a fair map? Why or why not?

6. Now it is time for re-districting and you get to draw the lines. There are three rules:

Rules

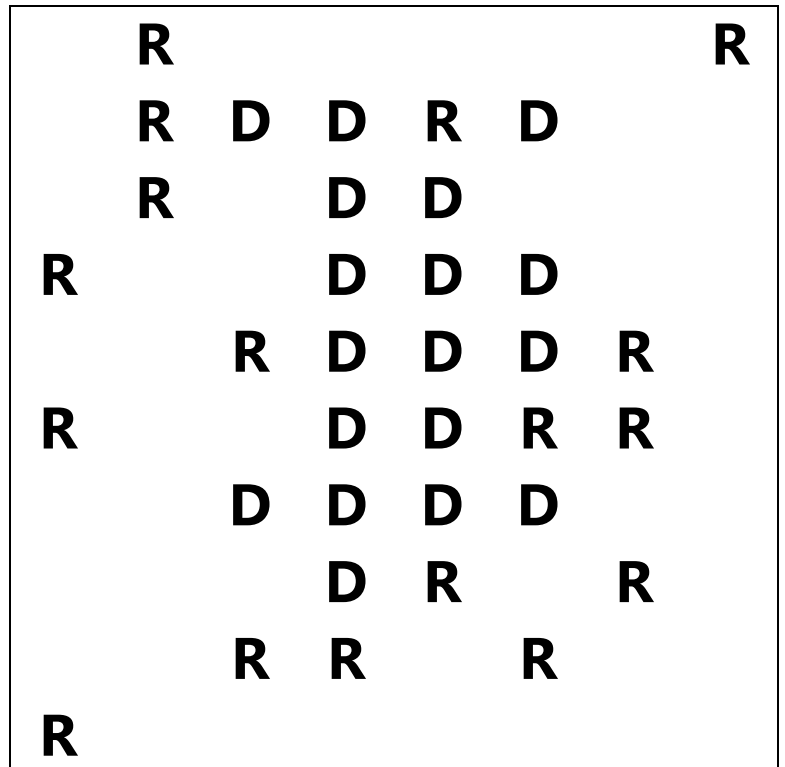
1. All legislative districts must contain the same number of people.
2. Districts must not be drawn according to race or ethnicity.
3. District must be contiguous – no split districts allowed

a. Use packing and cracking to win as many seats as possible for the **Democrats** and calculate the efficiency gap.

Election Results:	District	D Votes	R Votes	D Surplus or Wasted Votes	R Surplus or Wasted Votes
Democrats win	1				
_____ seats	2				
	3				
Republicans win	4				
_____ seats	5				
	6				
	7				
	Total				

Efficiency Gap

$$\frac{\text{Party A Wasted Votes} - \text{Party B Wasted Votes}}{\text{Total Votes}}$$



b. Use packing and cracking to win as many seats as possible for the **Republicans** and calculate the efficiency gap.

Election Results:

Democrats win

_____ seats

Republicans win

_____ seats

District	D Votes	R Votes	D Surplus or Wasted Votes	R Surplus or Wasted Votes
1				
2				
3				
4				
5				
6				
7				
Total				

Efficiency Gap

$$\frac{\text{Party A Wasted Votes} - \text{Party B Wasted Votes}}{\text{Total Votes}}$$

	R					R
	R	D	D	R	D	
	R		D	D		
R			D	D	D	
		R	D	D	D	R
R			D	D	R	R
		D	D	D	D	
			D	R		R
		R	R		R	
R						

7. Now let's check proportionality.

a. Find the overall percentage of Democrats in the state, and the overall percentage of Republicans. Shade in the percentages in the overall population bar below.

b. Then shade in the number of seats won with each map.

Overall Population:

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Seats in the Current Map

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Efficiency Gap:

Seats Gerrymandered for Democrats

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Efficiency Gap:

Seats Gerrymandered for Republicans

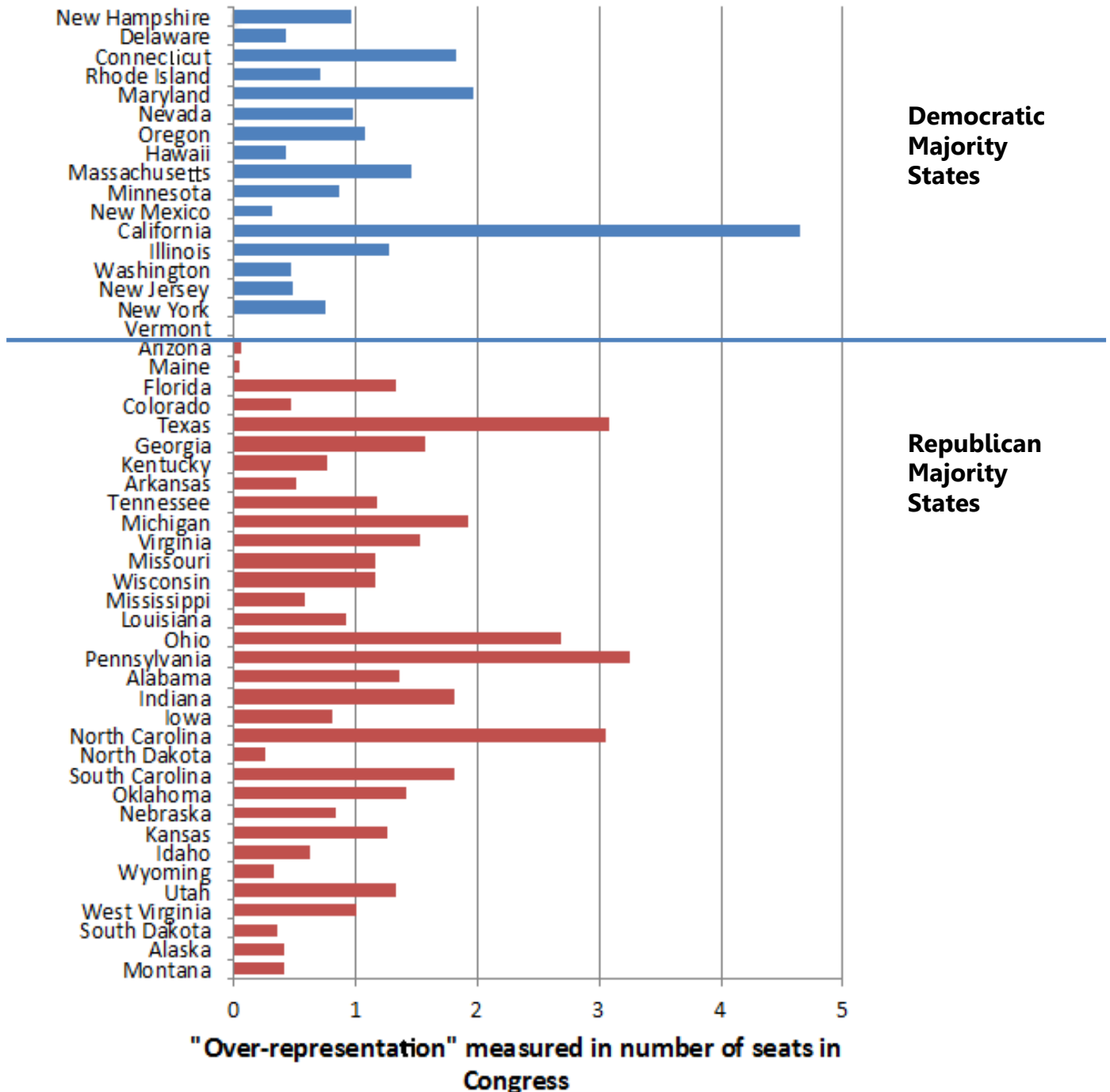
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Efficiency Gap:

7. Using the graph below, estimate the number of extra seats held by the majority party in the current House of Representatives.

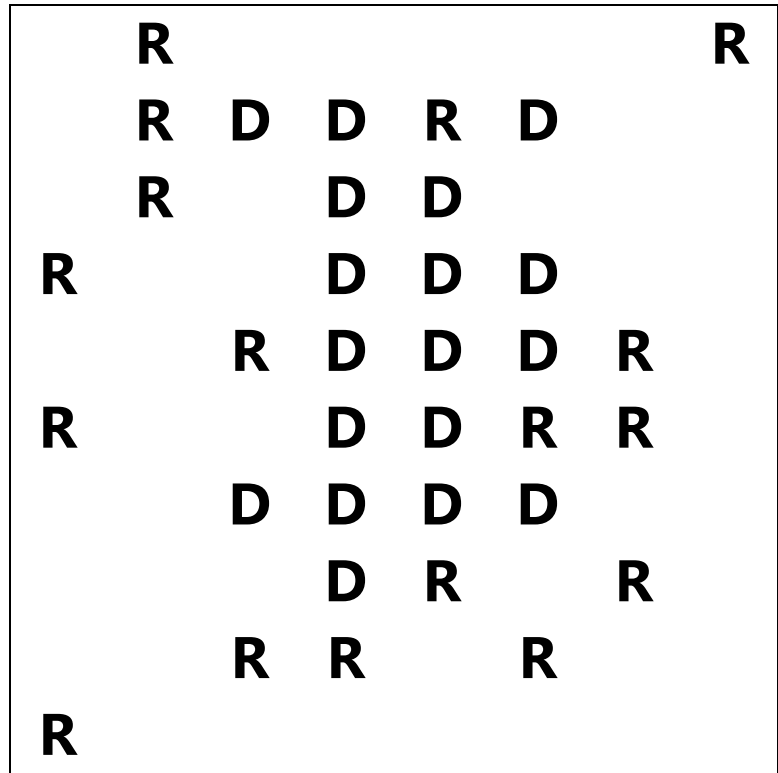
Source: <https://www.brookings.edu/blog/fixgov/2017/02/22/misrepresentation-in-the-house/>

Over-representation of majority party - measured in Congressional seats (compared with distribution of the votes)



Fair or Proportional Representation

8. Divide the state into two larger regions so that one will elect 4 representatives and the other will elect 3 representatives. Try to make the representation as proportional as possible.



9. An extra map to play with.

