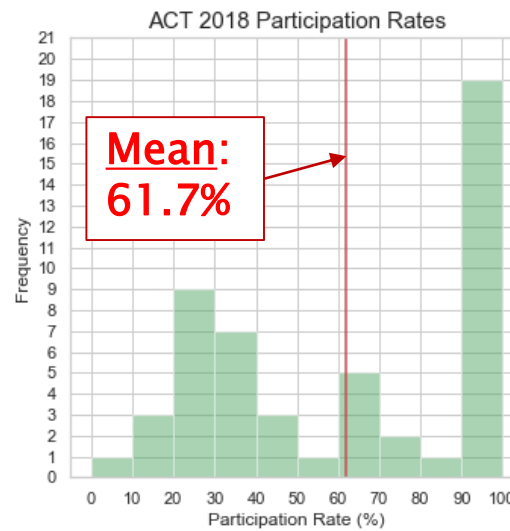
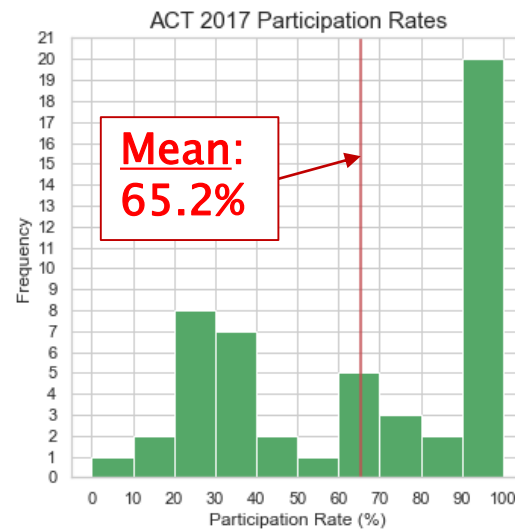
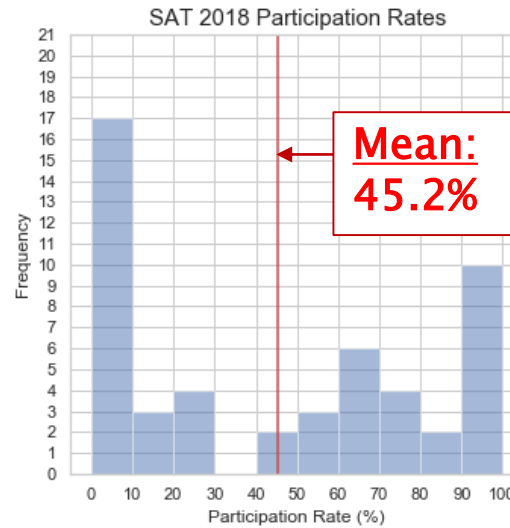
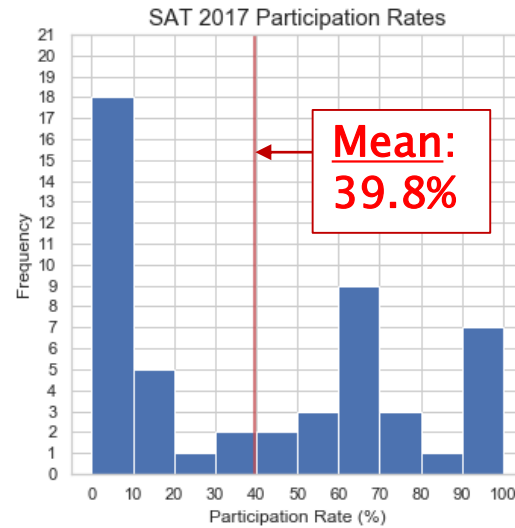


## The Problem

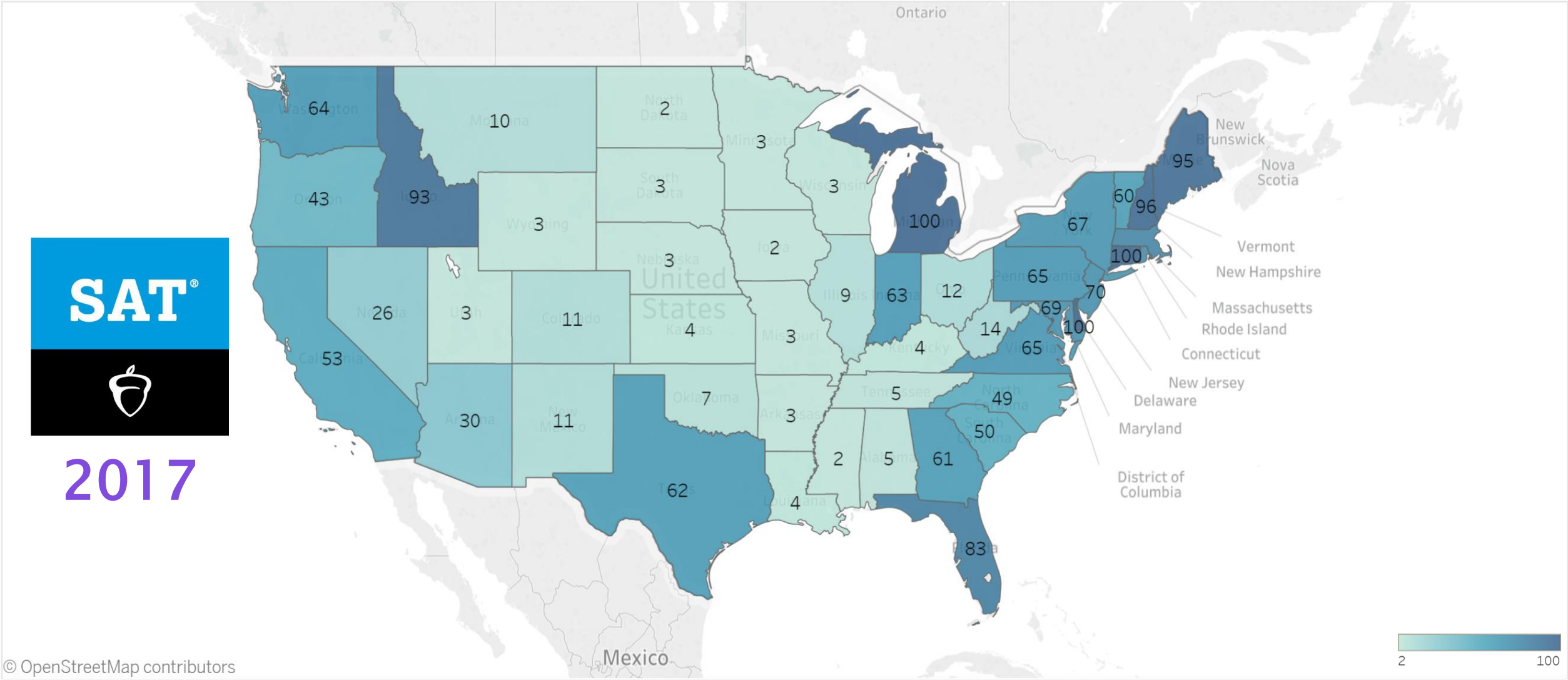
# SAT participation rates so low



# 2017 SAT Participation Rate (%)

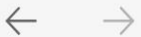


2017



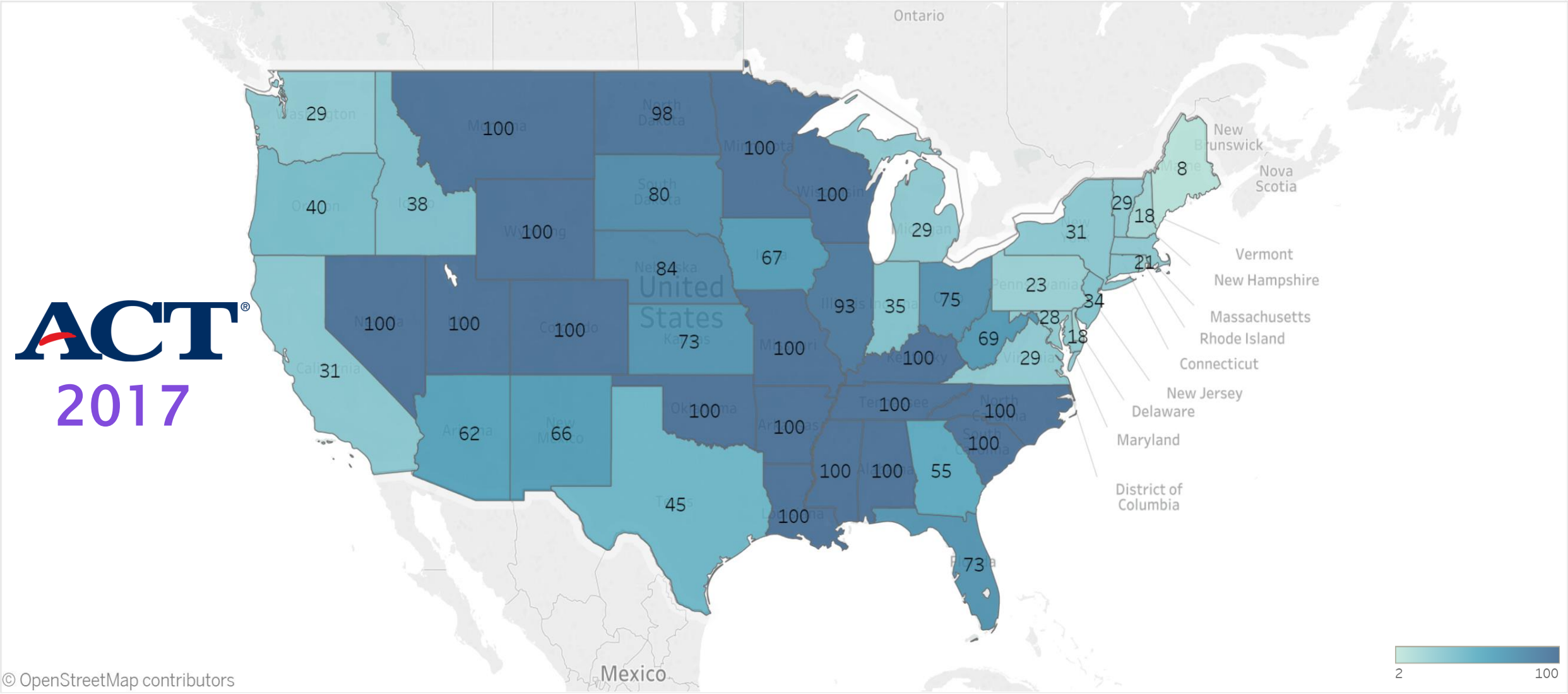
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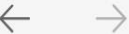
# 2017 ACT Participation Rate (%)

ACT<sup>®</sup>  
2017



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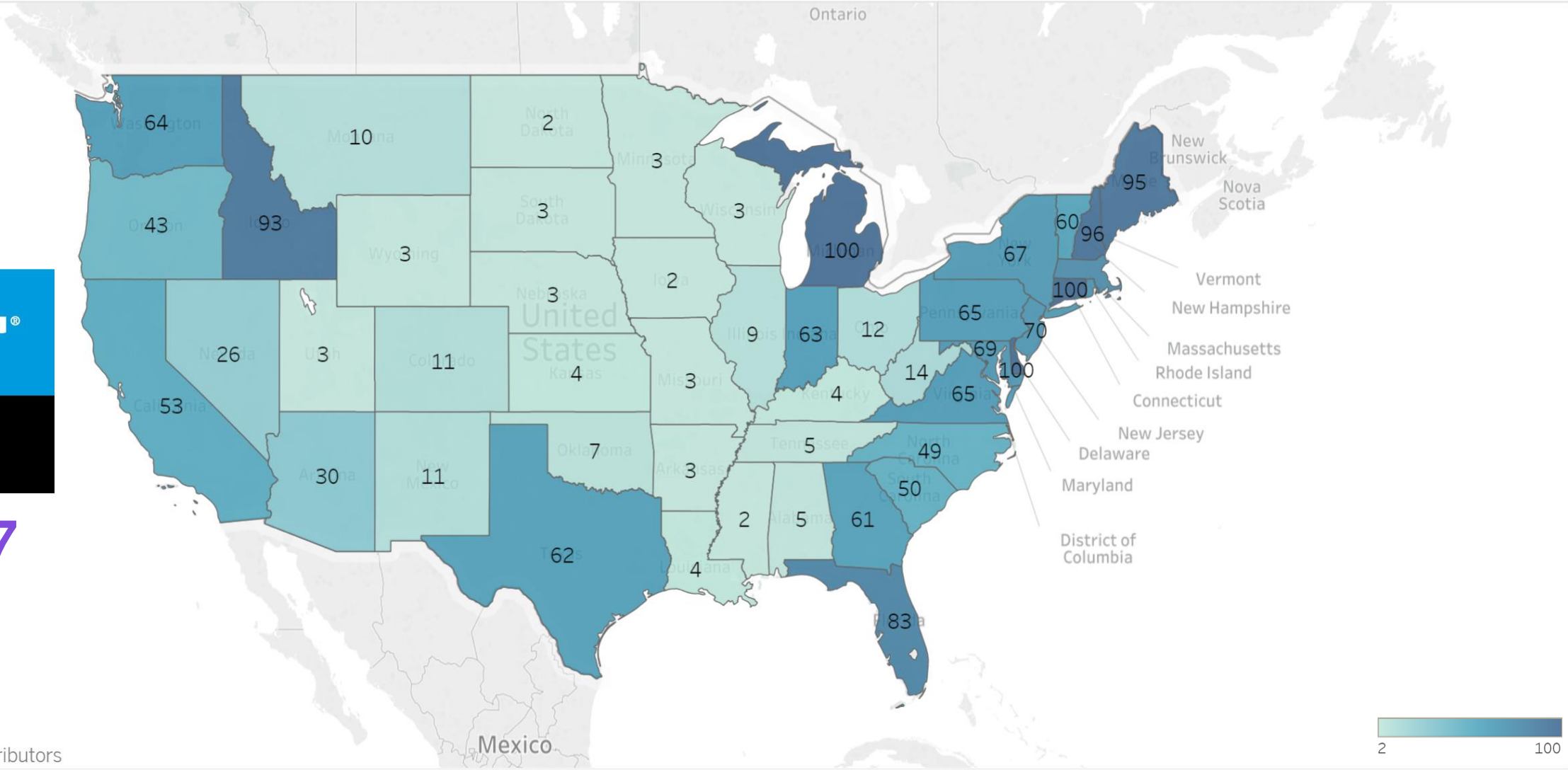
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# 2017 SAT Participation Rate (%)

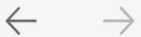


2017



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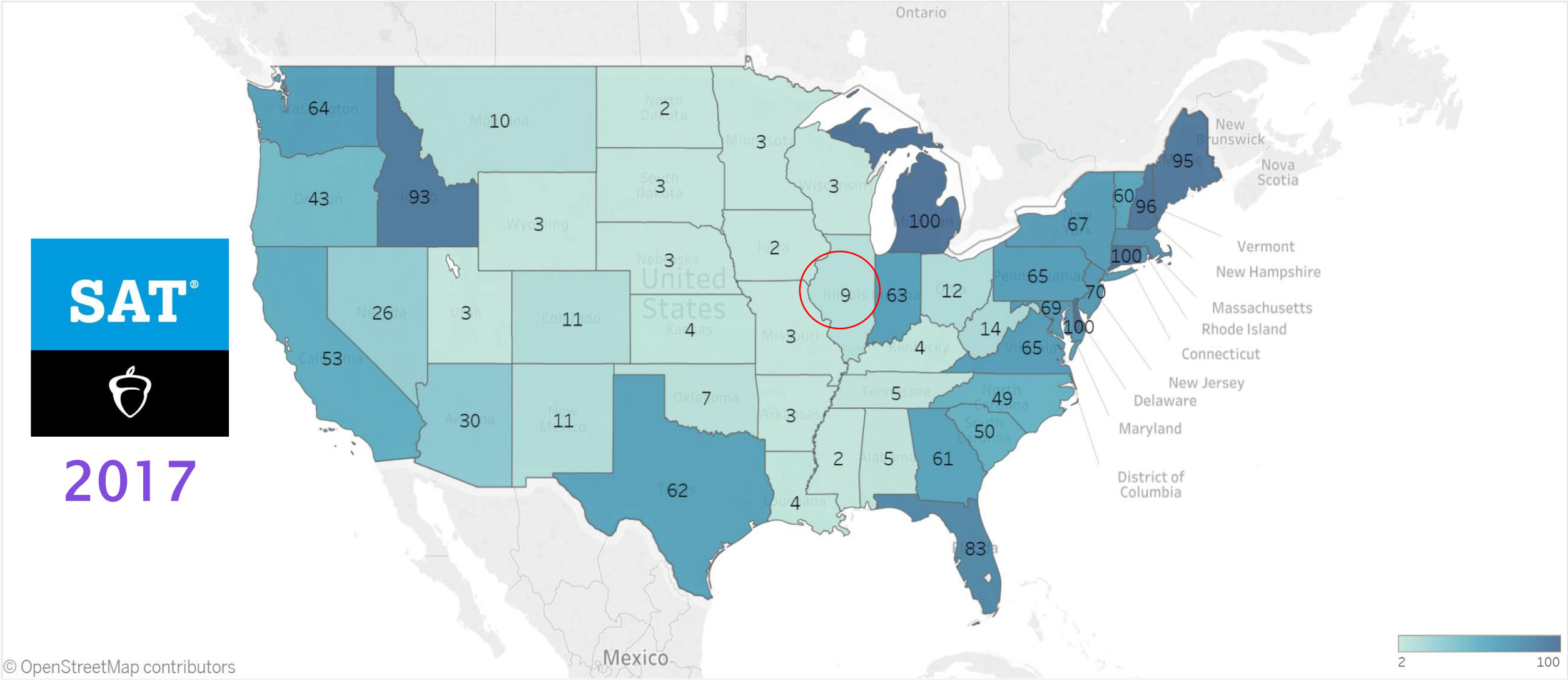
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# 2017 SAT Participation Rate (%)

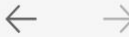


2017



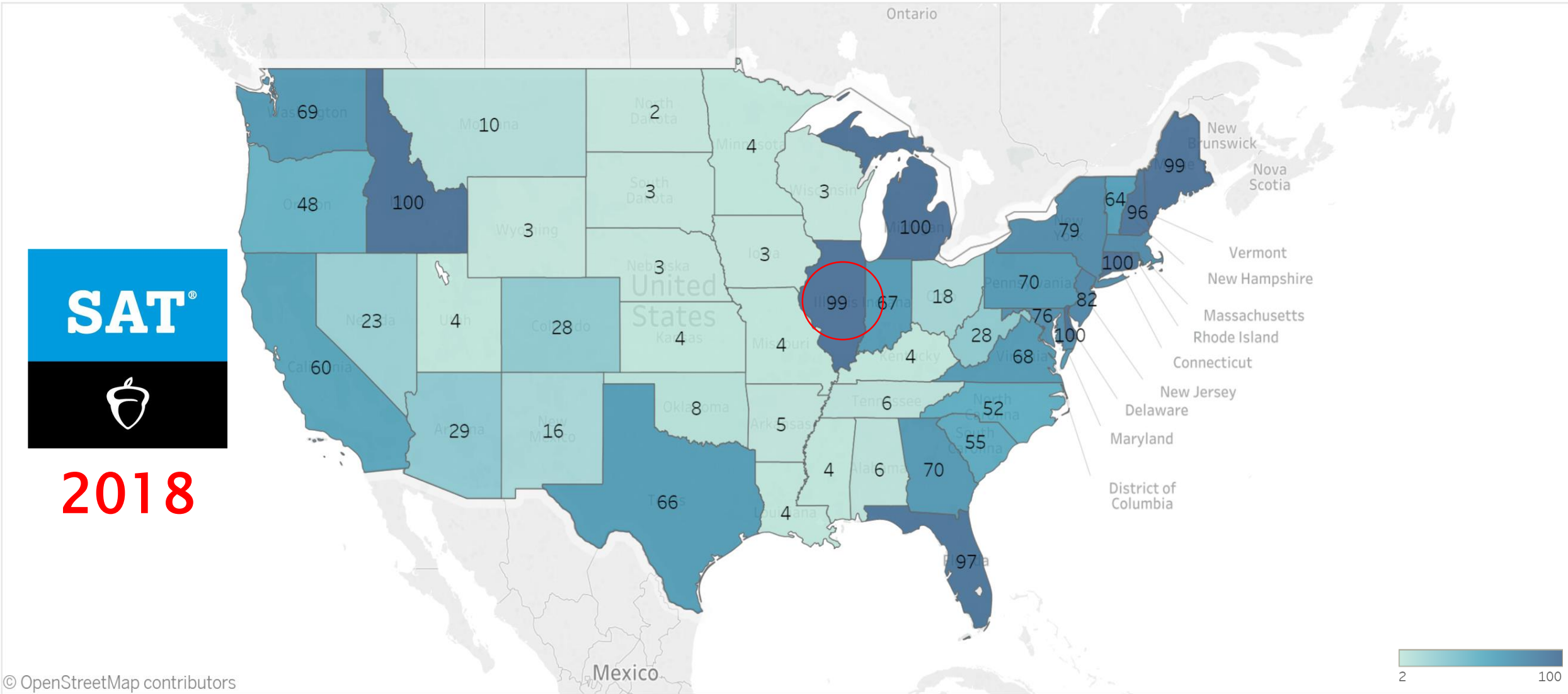
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# 2018 SAT Participation Rate (%)



# SAT Participation Rate Changes 2017–2018

## Summary Statistics

Statistic	SAT Participation Rate Change
Mean Change	5%
Standard Deviation	13%
Lowest	–8%
1 <sup>st</sup> Quartile	0%
Median	2%
3 <sup>rd</sup> Quartile	5%
Highest	90%

## Top Increases

State	SAT Participation Change	ACT Participation Changes
Illinois	+90%	–50%
Rhode Island	+26%	–6%
Colorado	+17%	–70%

## Top Decreases

State	SAT Participation Change	ACT Participation Changes
DC	–1%	0%
Nevada	–3%	0%
Arizona	–8%	+4%

## Background: Changes in Requirements



### PSAE Exam (2010 – 2014)

- 2-day standardized test taken by all High School Juniors
  - Day 1: The ACT
  - Day 2: WorkKeys Science Examination



### PARCC Exam (2015 – 2017)

- Intensive exam offered to both Grade 3 – 8 students and high school
- ACT became optional (but still on contract) in 2015
- Critics said the test was too long and too hard (Chicago Tribune)
  - Became controversial as high-stakes graduation requirement.
- Abolished once SAT was favored in 2017



## Why did the participation rate change so much in just 1 year?

1. State pays for it!
  - State subsidy provides an economic incentive to consumers due to reduced cost
  - ...but kind of out of our control!
2. ACT contract with State of Illinois expired:
  - ACT board lost the bid to us despite bidding \$5.7mm less
  - State saw cost differential as negligible once spread over 6 year contract life
  - ...so we don't necessarily need to bid less than our competitors
3. State needed a less time-consuming test to prepare for to replace the PARCC

## Takeaways

- From just broad state-level participation data, there is only so much we can glean from the data
- From the choropleth map, certain regions like the East Coast (particularly New England) are already in our pocket! But the story for rest of the states cases are rather idiosyncratic.
- Our deep dive into Illinois provided insight where we see the decision was a shift to a less time-consuming test, and the state subsidy provided an incentive but can we generalize this?

## Further Enquiry

- **Regression Analysis with  $Y$  = participation rate**
  - Is less preparation time a statistically significant factor that drives participation rate?
  - After including state subsidy as an indicator/dummy variable, what other factors are there?
  - Can we uncover latent idiosyncratic factors that drive participation rate, using Principal Component Analysis?
- **Contract Theory Optimization Model:**
  - For a given State, what is the optimal bid higher than ACT's that would make the sponsor see the cost differential as negligible?