

# Cast Vote Record (CVR)

Fillmore County Minn. 2020 General Election

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# Cast Vote Record (CVR)

- The Fillmore County CVR is a comma separated value (CSV) text file which lists information about ballots in the order received. Each line represents one ballot.
- It contains only
  - Cast Vote Record Number
  - Precinct
  - Votes cast
- What does NOT appear in a Cast Vote Record is any information which would identify the voter or personally identifiable information (PII).

# Fillmore County CVR

Number	Precinct	President and Vice-President	U.S. Senator	U.S. Representative D	State Senator D28
1	City of Lanesboro	DFL Joseph R. Biden/Harris	GLC Oliver Steinberg	GLC Bill Rood	DFL Sarah Kruger
2	Carrolton Township	REP Donald J. Trump/Pence	REP Jason Lewis	REP Jim Hagedorn	REP Jeremy R. Miller
3	City of Chatfield	DFL Joseph R. Biden/Harris	DFL Tina Smith	DFL Dan Feehan	REP Jeremy R. Miller
4	Rushford Village	DFL Joseph R. Biden/Harris	DFL Tina Smith	DFL Dan Feehan	DFL Sarah Kruger
5	City of Chatfield	DFL Joseph R. Biden/Harris	DFL Tina Smith	DFL Dan Feehan	DFL Sarah Kruger
6	City of Preston	DFL Joseph R. Biden/Harris	DFL Tina Smith	REP Jim Hagedorn	REP Jeremy R. Miller
7	City of Lanesboro	REP Donald J. Trump/Pence	REP Jason Lewis	REP Jim Hagedorn	REP Jeremy R. Miller
8	Beaver Township	REP Donald J. Trump/Pence	REP Jason Lewis	REP Jim Hagedorn	REP Jeremy R. Miller
9	City of Preston	REP Donald J. Trump/Pence	REP Jason Lewis	REP Jim Hagedorn	REP Jeremy R. Miller
10	City of Harmony	DFL Joseph R. Biden/Harris	DFL Tina Smith	DFL Dan Feehan	REP Jeremy R. Miller
11	City of Mabel	DFL Joseph R. Biden/Harris	DFL Tina Smith	DFL Dan Feehan	DFL Sarah Kruger
12	City of Mabel	DFL Joseph R. Biden/Harris	DFL Tina Smith	DFL Dan Feehan	DFL Sarah Kruger
13	City of Chatfield	DFL Joseph R. Biden/Harris	DFL Tina Smith	DFL Dan Feehan	DFL Sarah Kruger
14	City of Rushford	REP Donald J. Trump/Pence	REP Jason Lewis	REP Jim Hagedorn	REP Jeremy R. Miller
15	City of Harmony	REP Donald J. Trump/Pence	DFL Tina Smith	REP Jim Hagedorn	DFL Sarah Kruger
16	Bristol Township	REP Donald J. Trump/Pence	REP Jason Lewis	REP Jim Hagedorn	REP Jeremy R. Miller
17	City of Wykoff	REP Donald J. Trump/Pence	REP Jason Lewis	REP Jim Hagedorn	DFL Sarah Kruger
18	City of Chatfield	REP Donald J. Trump/Pence	REP Jason Lewis	GLC Bill Rood	REP Jeremy R. Miller
19	City of Chatfield	DFL Joseph R. Biden/Harris	DFL Tina Smith	DFL Dan Feehan	DFL Sarah Kruger
20	City of Lanesboro	DFL Joseph R. Biden/Harris	DFL Tina Smith	DFL Dan Feehan	DFL Sarah Kruger
11787	Carrolton Township	REP Donald J. Trump/Pence	REP Jason Lewis	REP Jim Hagedorn	REP Jeremy R. Miller
11788	Carrolton Township	DFL Joseph R. Biden/Harris	DFL Tina Smith	DFL Dan Feehan	DFL Sarah Kruger
11789	Carrolton Township	DFL Joseph R. Biden/Harris	DFL Tina Smith	DFL Dan Feehan	DFL Sarah Kruger
11790	Carrolton Township	REP Donald J. Trump/Pence	LMN Kevin O'Conno	DFL Dan Feehan	REP Jeremy R. Miller
11791	Carrolton Township	REP Donald J. Trump/Pence	LMN Kevin O'Conno	GLC Bill Rood	REP Jeremy R. Miller

# Analysis Overview

- The CVR allows a data analyst to “replay” the election ballot by ballot to spot unnatural patterns of voting.
- Shows a candidates percent of votes over time

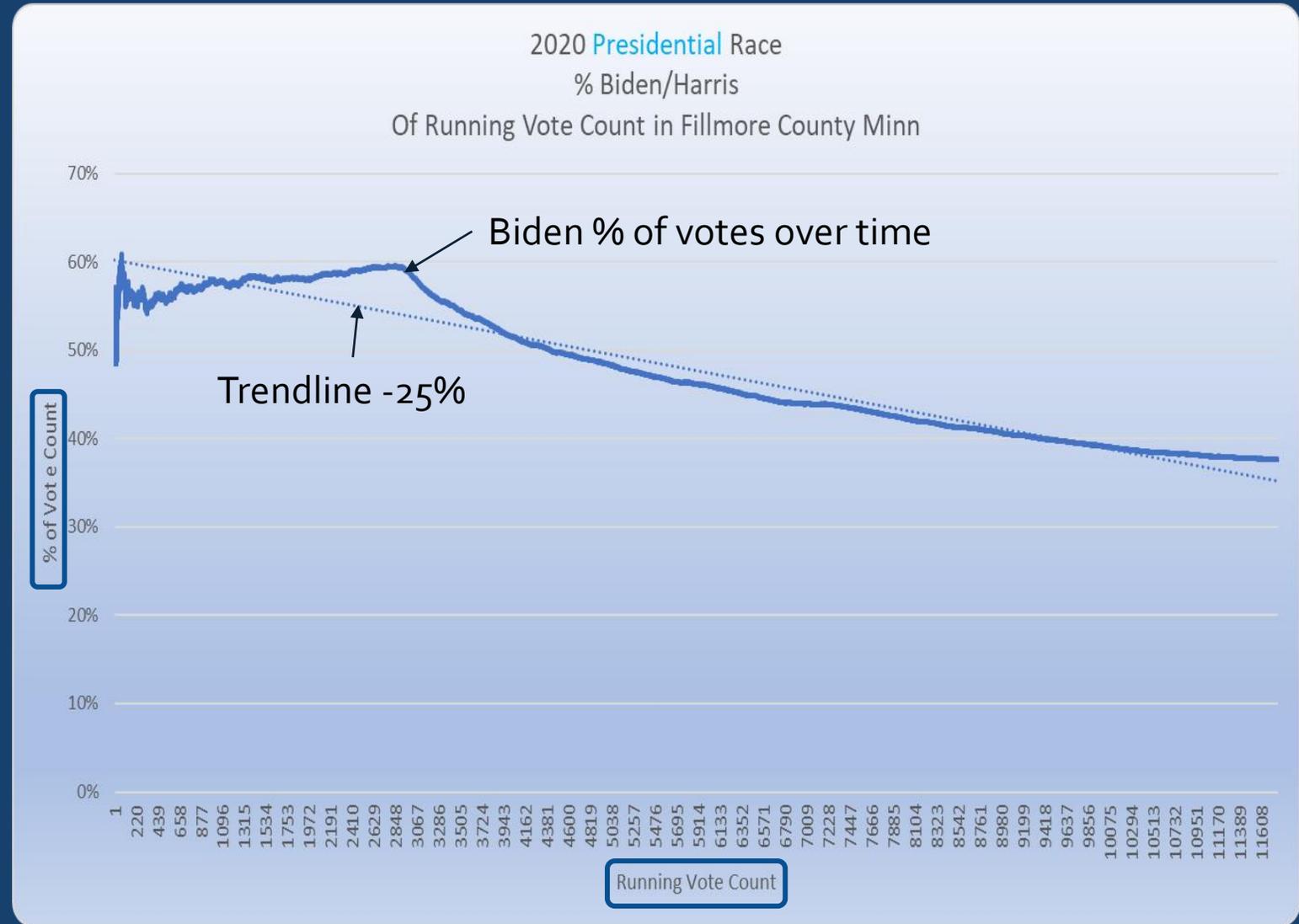
$$= \frac{\text{Number of votes cast for a candidate}}{\text{Running vote count}}$$

- After the first vote is cast
  - One candidate has 100%
  - All other candidates have 0%
- Only close races analyzed

# Presidential

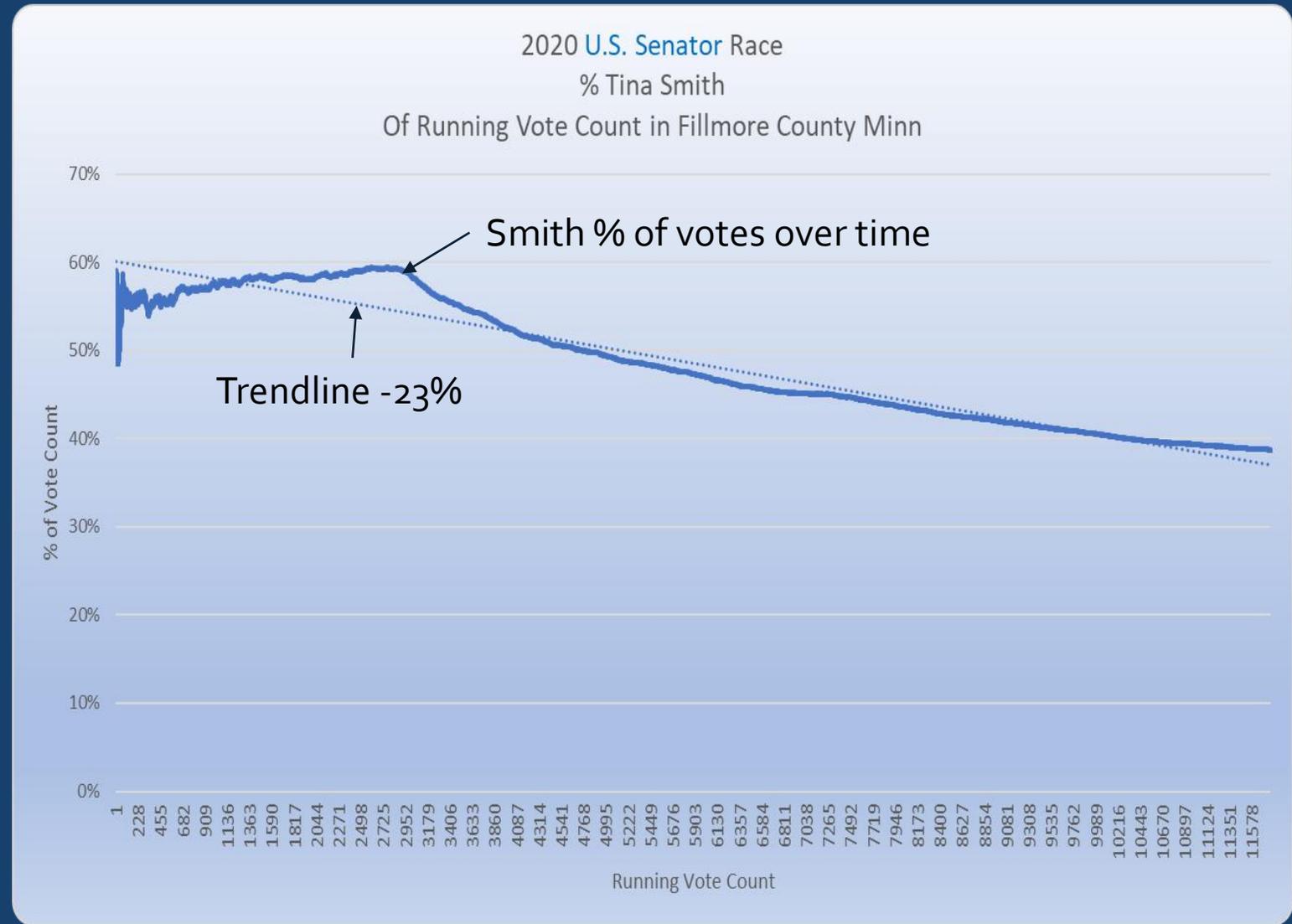
The graph shows the percent of votes cast for a candidate at a particular time.

The trendline for this candidate starts at 60% and ends at 35%. It drops 25 percentage points.



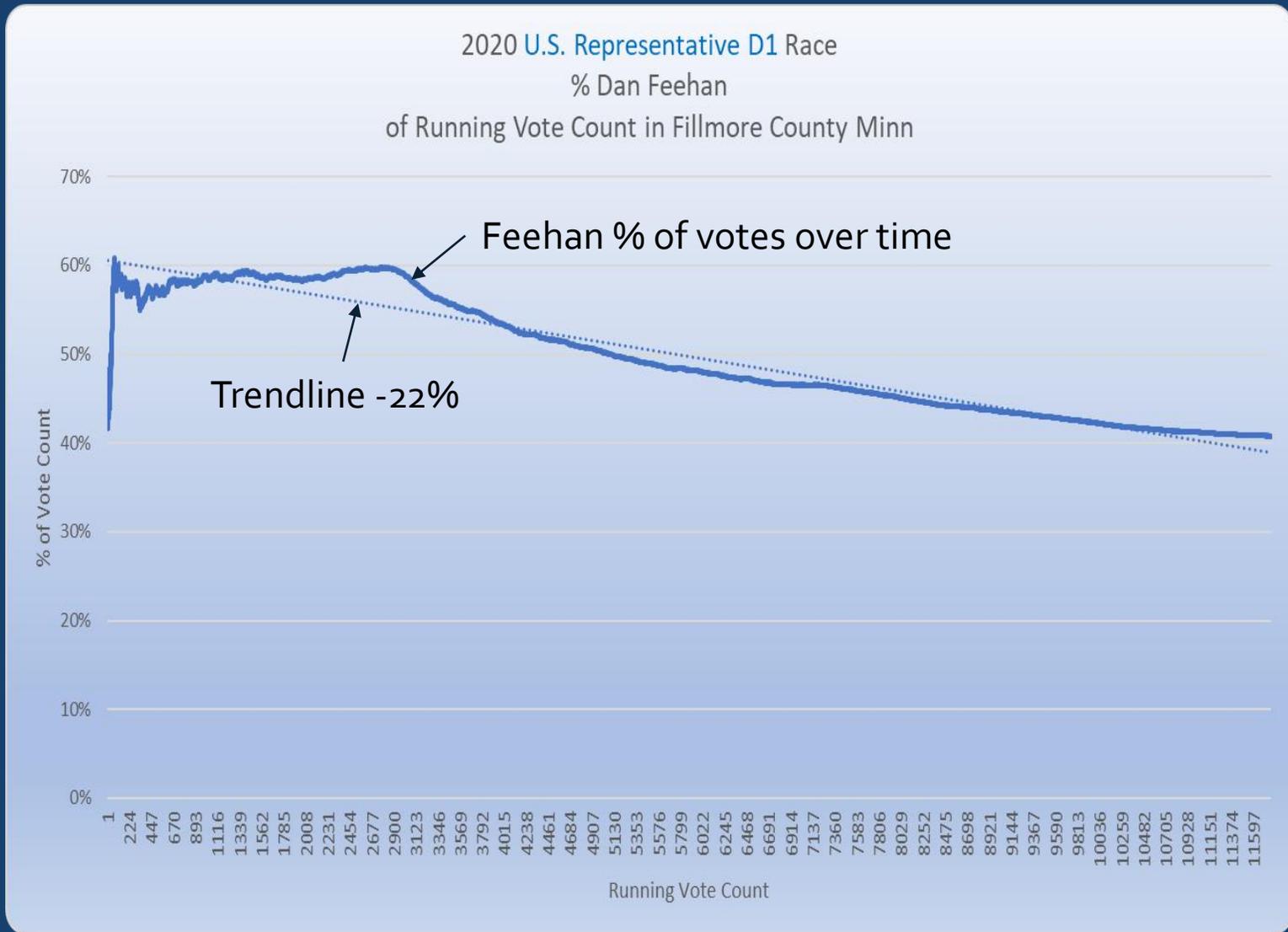
# U.S. Senator

This trendline goes from 60% to 37% and drops 23 percentage points.



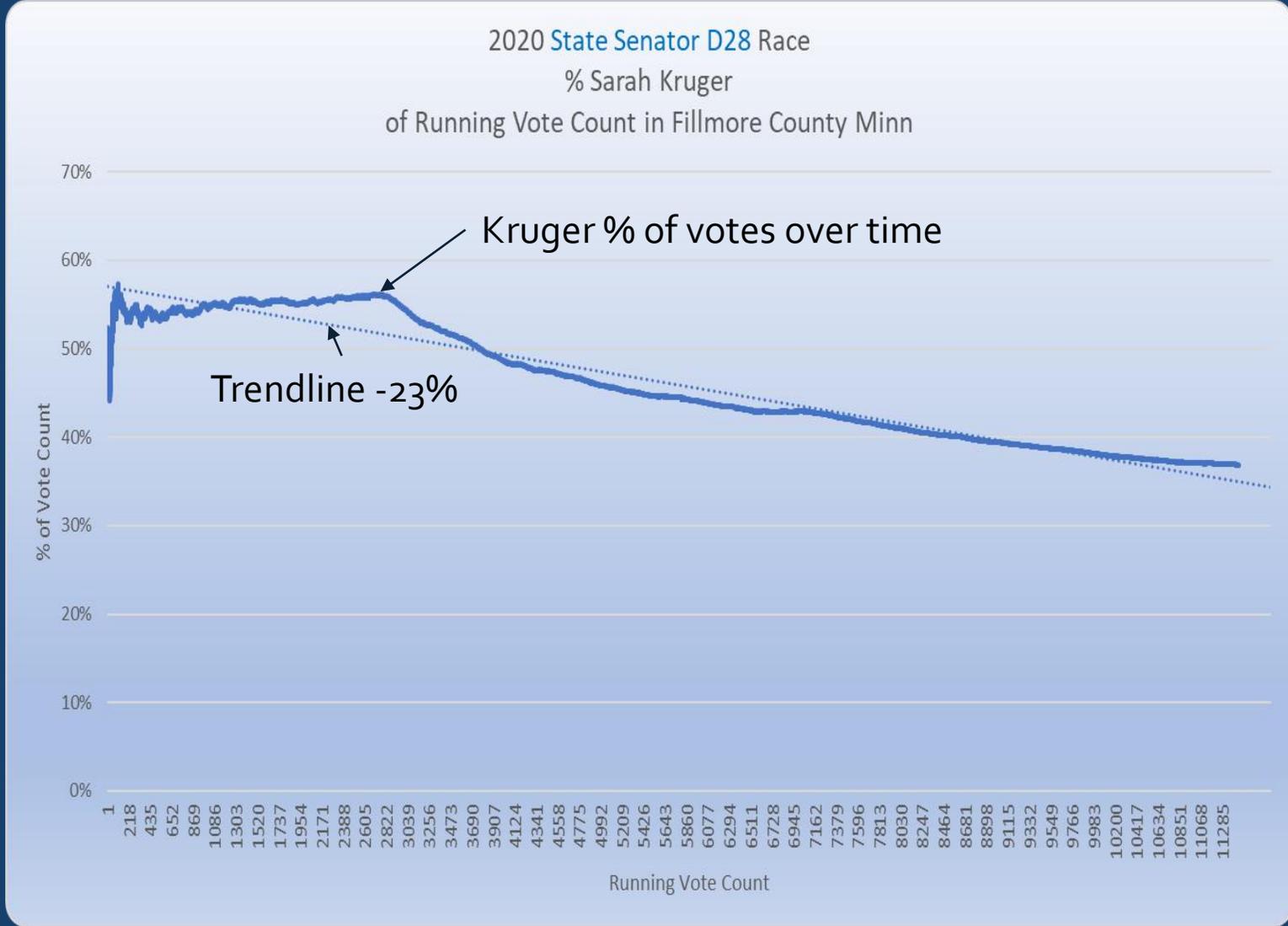
# U.S. Representative D1

This trendline slopes from 60% down to 38% and drops 22%.



# State Senator D28

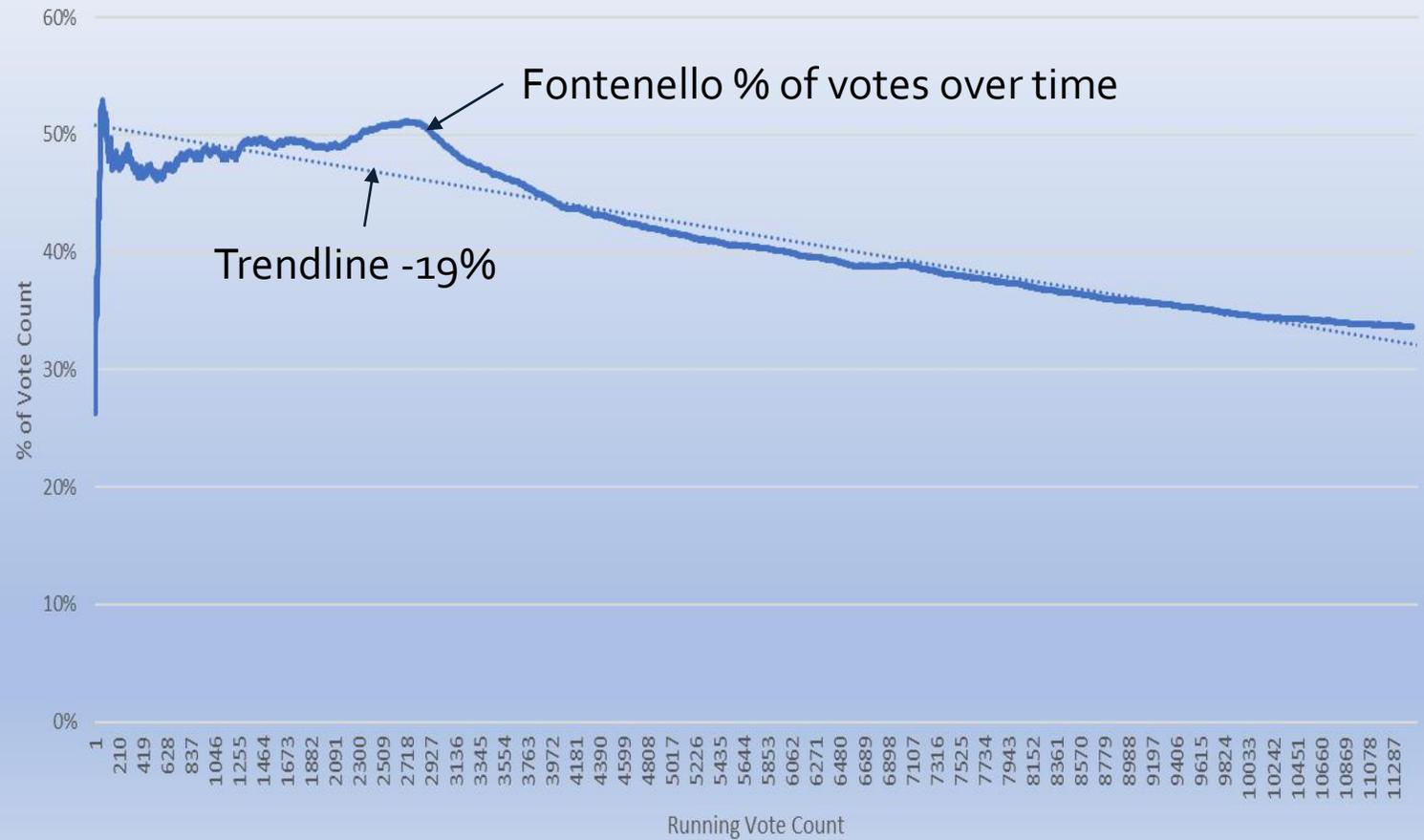
This trendline slopes from 58% to 35%.



# State Representative D28B

Trendline goes from 51% to 32%.

2020 State Representative D28B Race  
% Jordan Fontenello  
of Running Vote Count in Fillmore County Minn

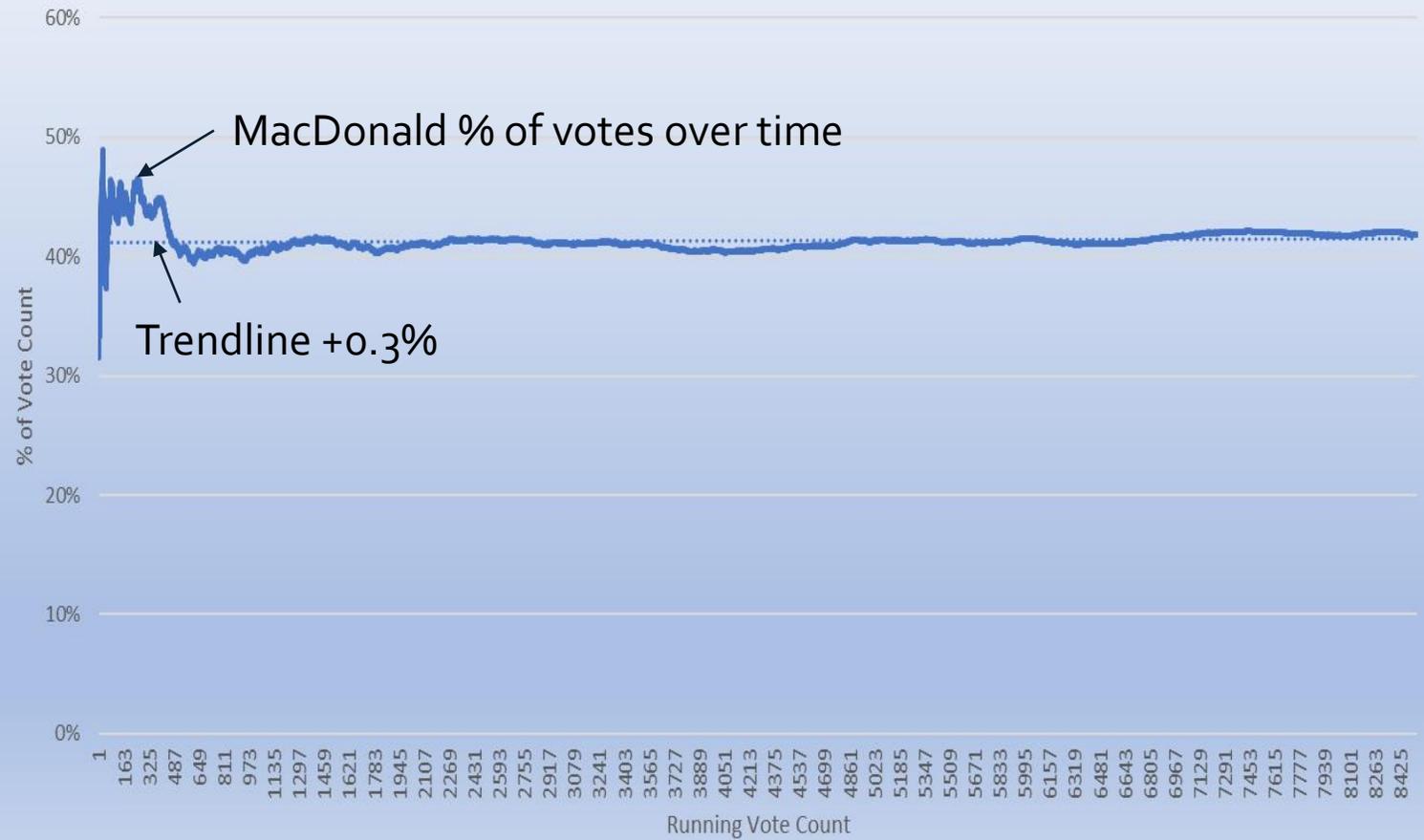


# Associate Justice 4

The cast vote trendline for a candidate reflects how voters come into the polls and is typically flat. The Justice 4 race shows a truly random voting pattern. The trendline is flat. It starts and ends at 42% and the percent of votes over time for the candidate flattens early.

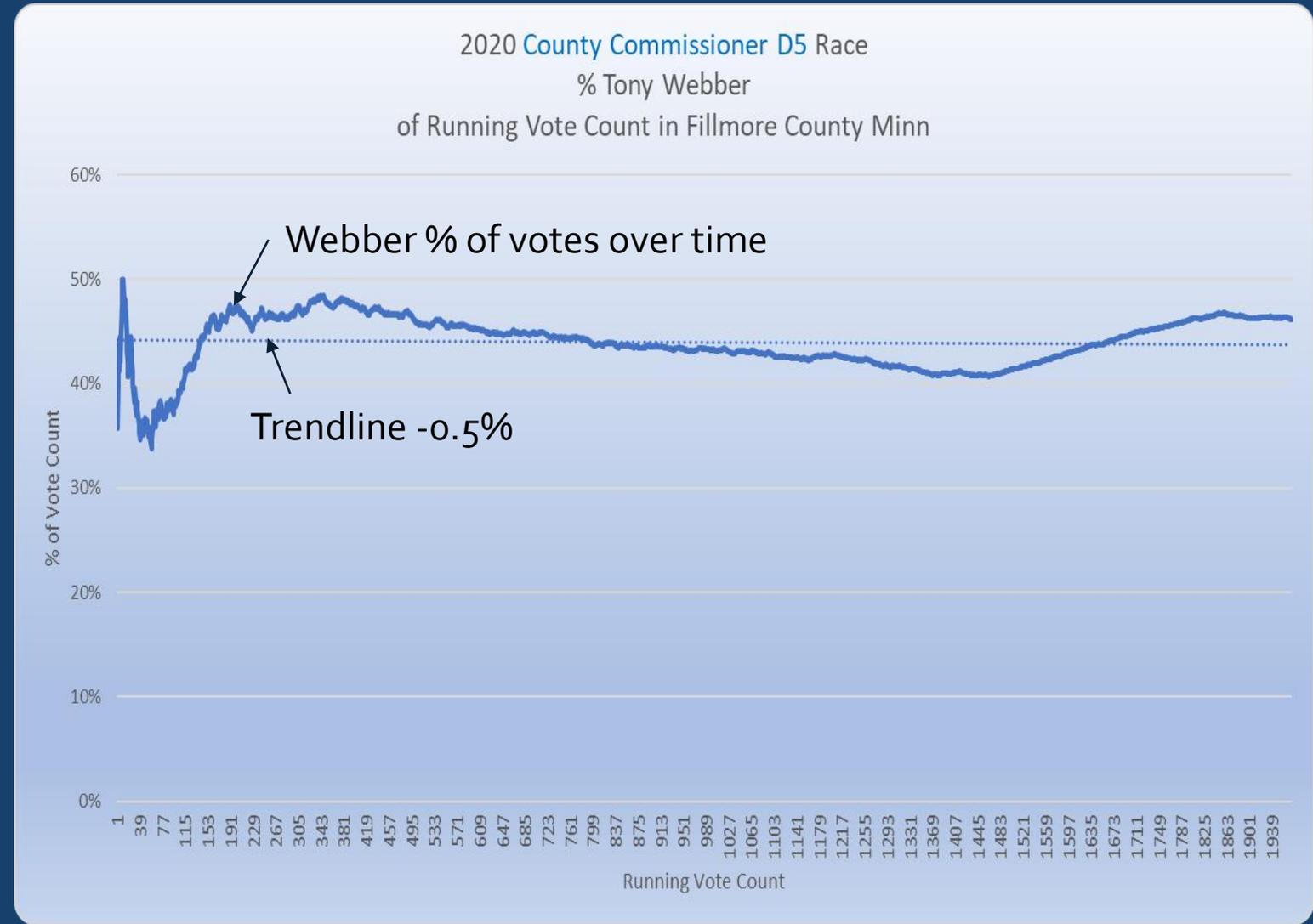
As the running vote count grows so does the denominator. In a large race, it takes a lot of votes to move the line which causes the percent of votes over time to flatten early and stay flat.

2020 Associate Justice 4 Race  
% Michelle MacDonald  
of Running Vote Count in Fillmore County Minn



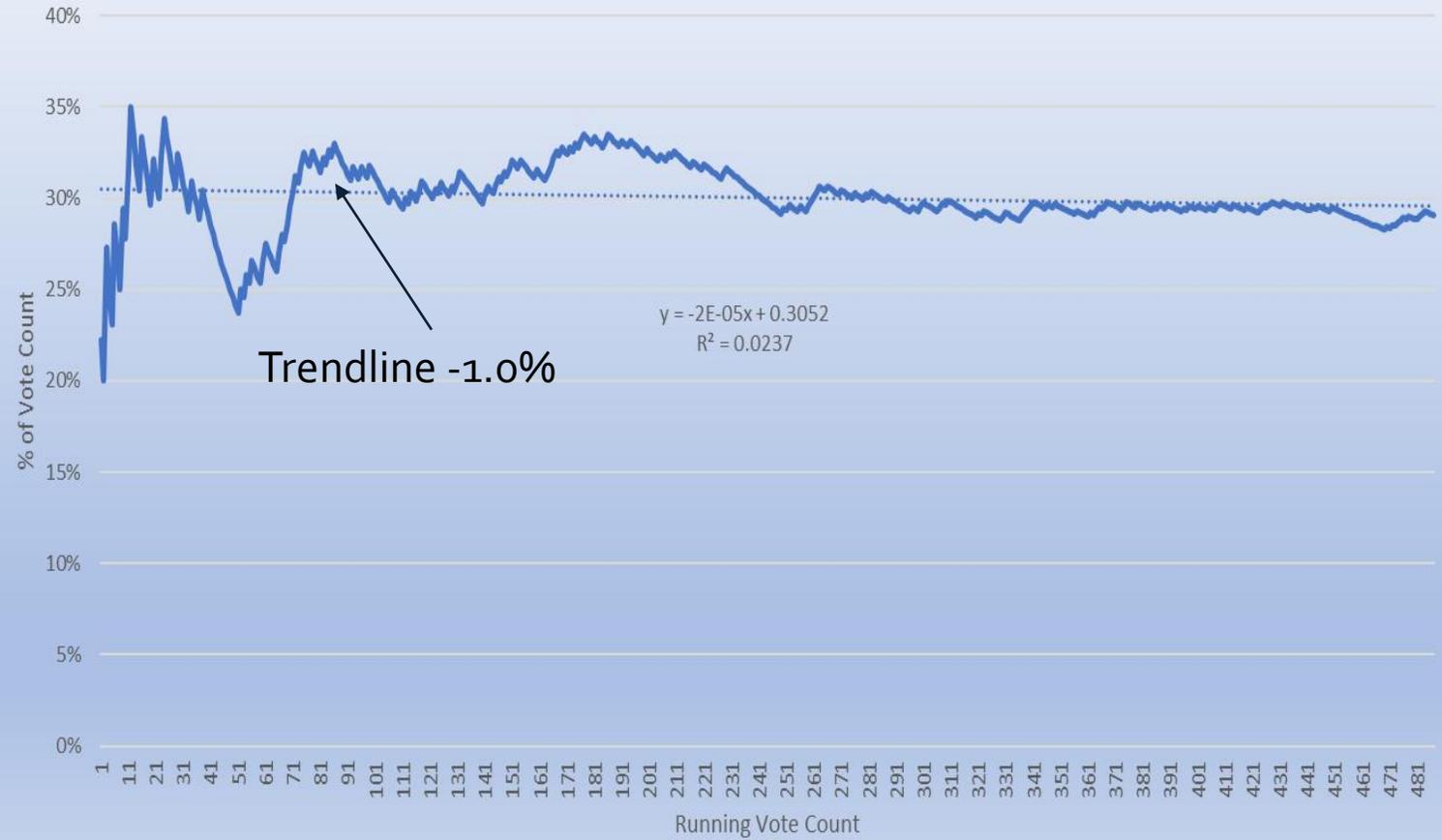
# County Commissioner D5

This voting pattern is also typical. The trendline starts and ends at 45%. The percent of votes over time for a single candidate doesn't trend up or down.



# Cncl Mmbr at Lrg City of Lanesboro

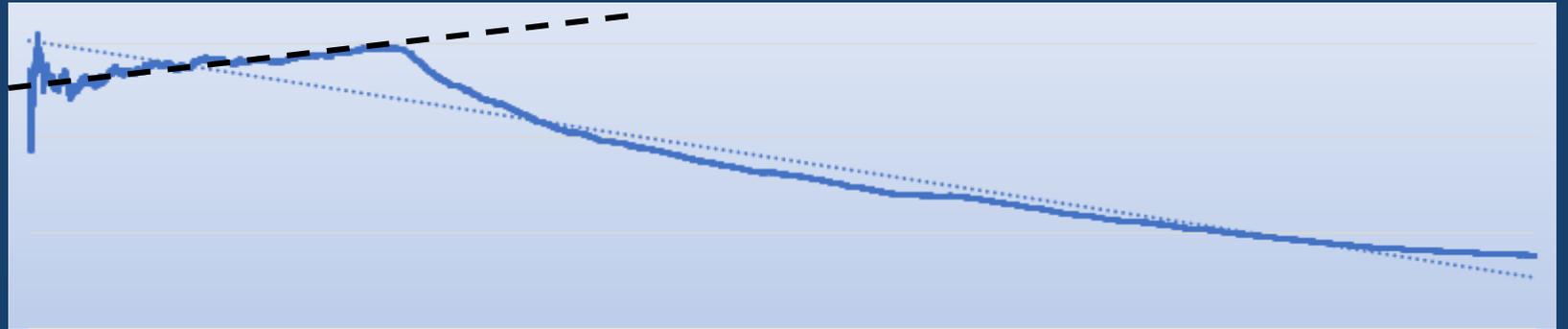
2020 Cncl Mmbr at Lrg City of Lanesboro Race  
% Alissa Sindelar  
of Running Vote Count in Fillmore County Minn



# Rewind

- Rewind the slides to see the pattern
- Pay attention to the shape of the dark blue line

# Points of Interest



- Five major races have odd behavior
  - Slopes drop 20 - 25 percentage points
  - Shape of curves are identical
  - Early gradual trend up
- All of the rest of the graphs are completely unique



# Slope Intersects and Inflection Points

- Show change events
- Are meaningful when comparing data

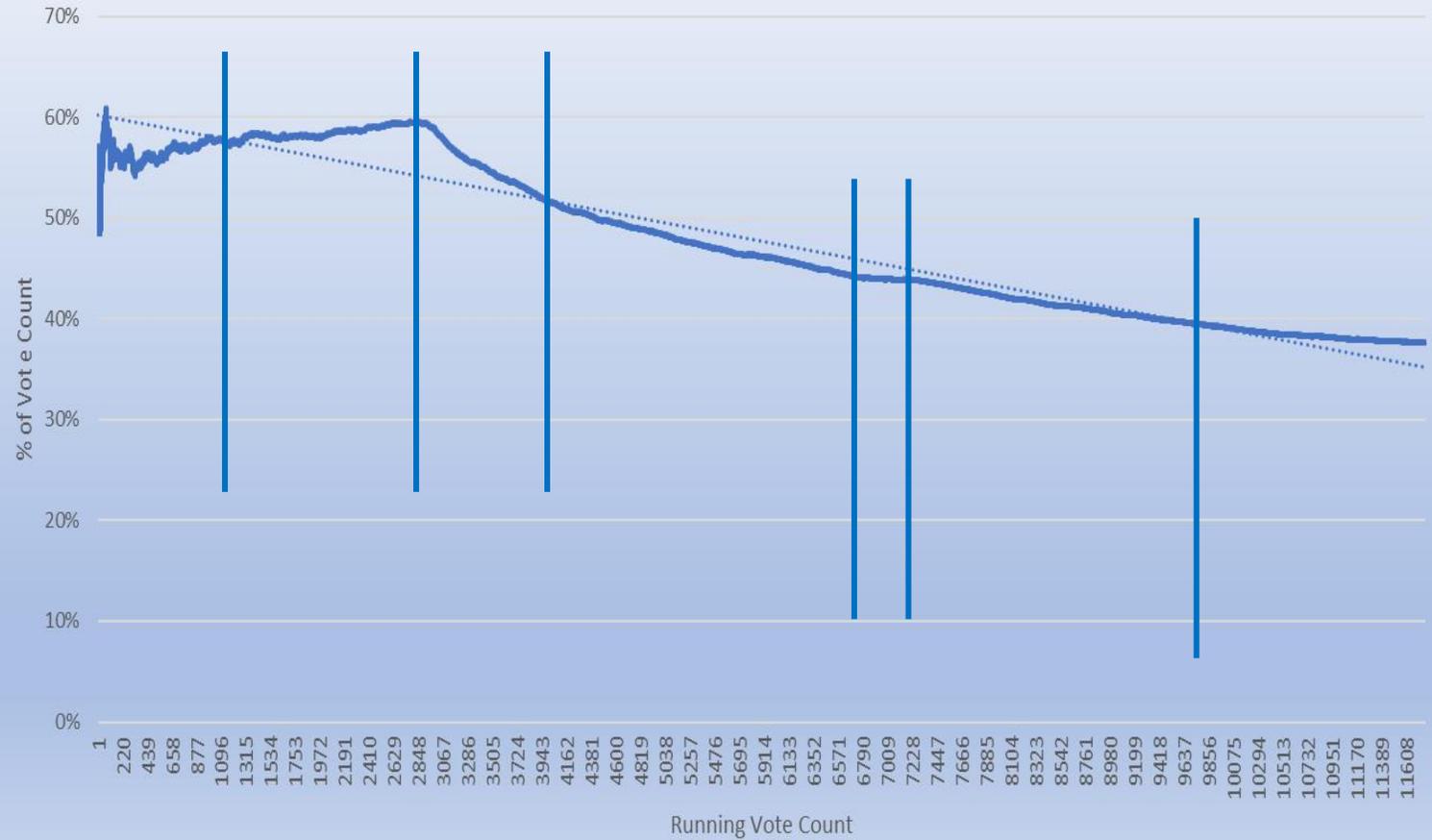
# Presidential

Vertical lines show slope intersects and inflection points.

Slope Intersects are where the graph line crosses slope line.

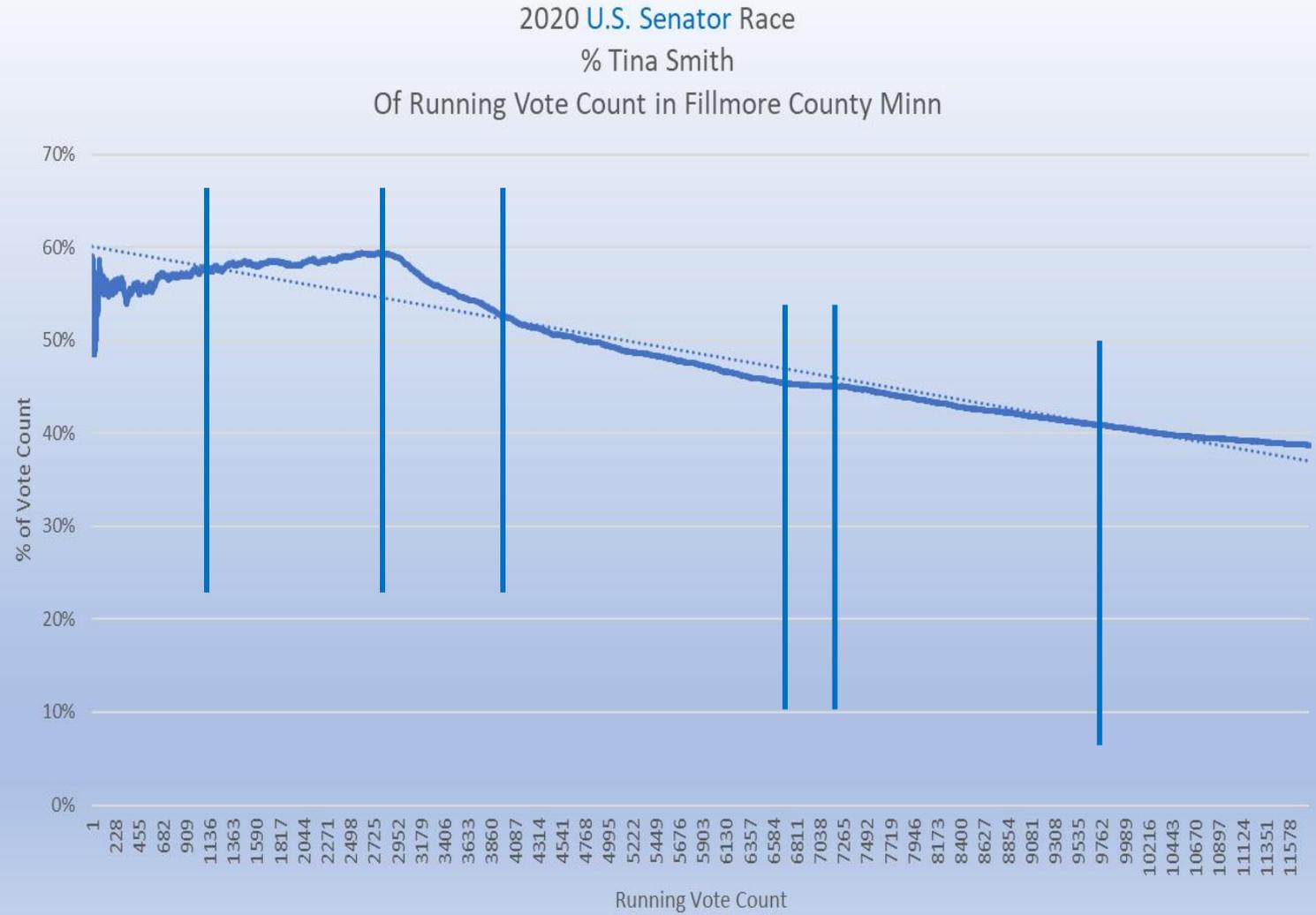
Inflection Points are where the curve changes direction.

2020 Presidential Race  
% Biden/Harris  
Of Running Vote Count in Fillmore County Minn



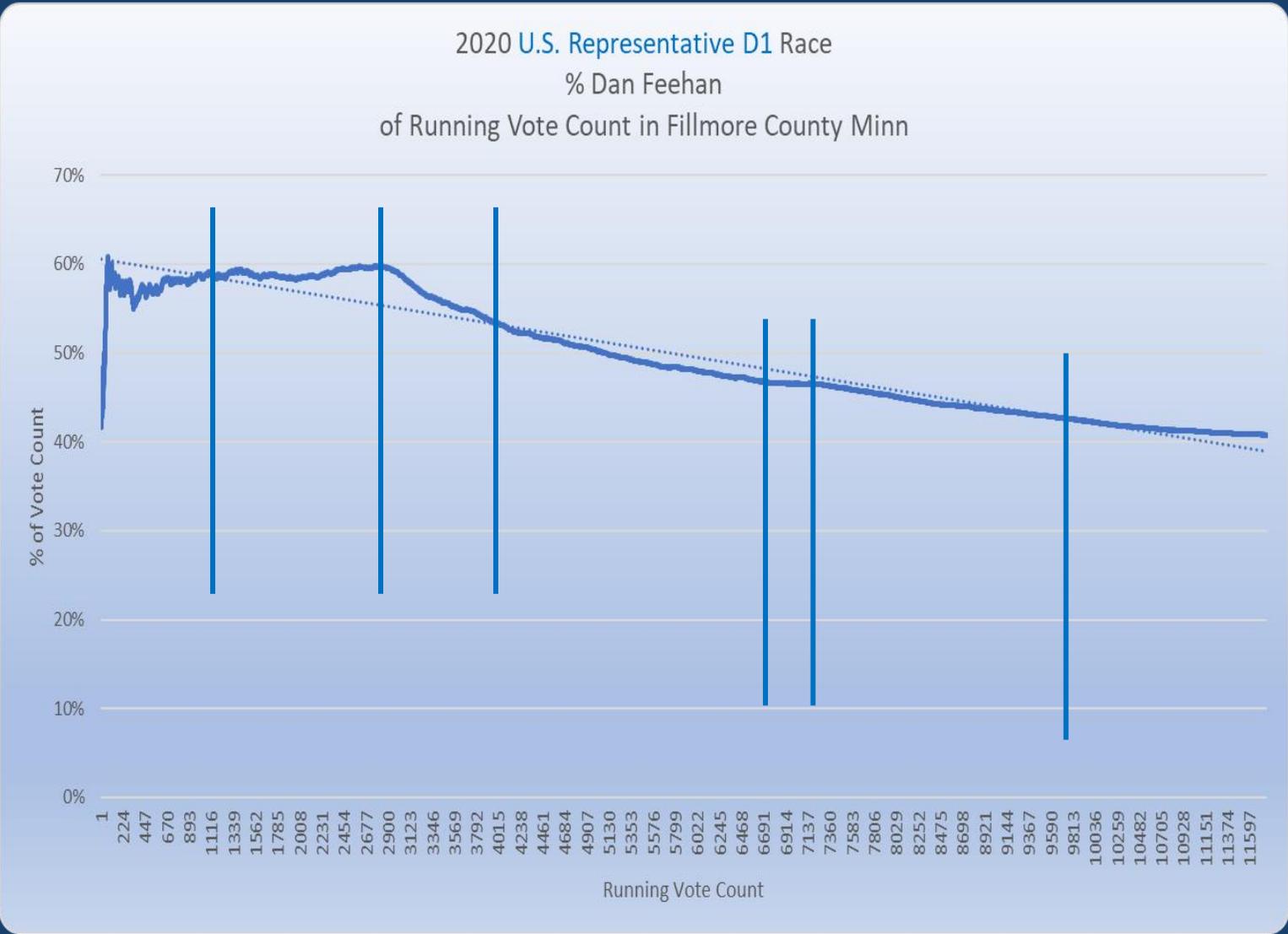
# U.S. Senator

The slope intersects and inflection points (i.e. change events) occur at the same time as the presidential race.



# U.S. Representative D1

And these change events happen at the same time.



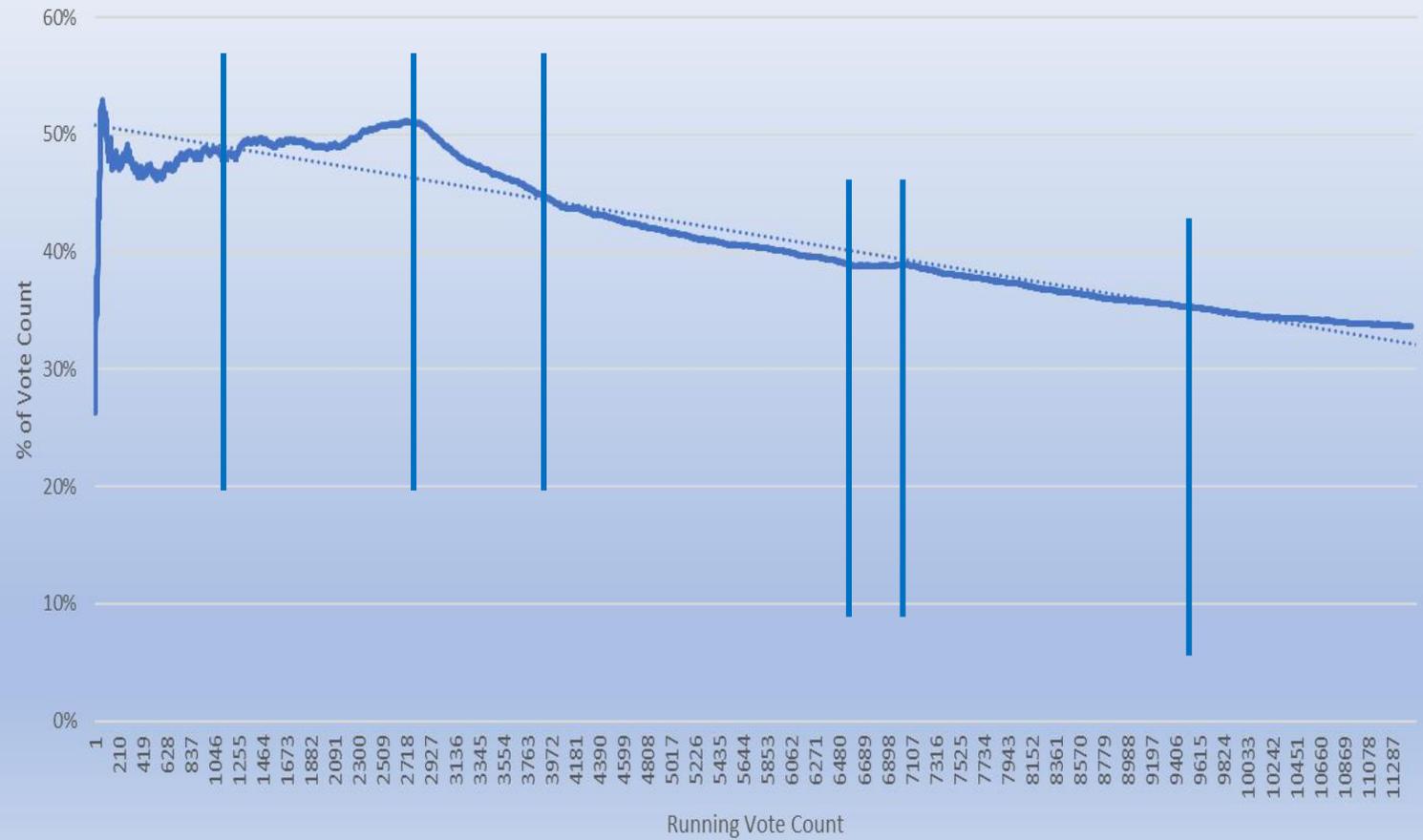
# State Senator D28

2020 State Senator D28 Race  
% Sarah Kruger  
of Running Vote Count in Fillmore County Minn



# State Representative D28B

2020 State Representative D28B Race  
% Jordan Fontenello  
of Running Vote Count in Fillmore County Minn



# Rewind

- Rewind the slides to see the pattern
- The change events don't move
- Watch the vertical lines

# CVR Conclusion

- Voting patterns in five major races are odd
  - Slopes drop 20 - 25 percentage points
  - Early gradual trend up
  - Followed by simultaneous change events
- No definitive evidence of a crime
- Must be compared to other CVRs