

Report 1: Comparing mass and elite models of change

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I. INTRODUCTION

On June 26th, 2008, the US Supreme Court dramatically expanded the Second Amendment and established an individual right to bear arms. In deciding *District of Columbia v. Heller*, the Supreme Court ruled in favor of the right of Americans to own guns over the right of the government to control gun ownership. This landmark verdict possibly impacted Americans' perspectives on gun ownership, leading us to pose the question: does the Supreme Court or the masses drive public opinion on gun control?

Some scholars argue that the public opinion is driven by elites such as prominent political figures and the United States Supreme Court (e.g., Zaller 1992, Lenz 2013). Other scholars suggest elites follow public opinion on salient political issues (e.g., Lee 2002, Gillion 2012, Stephan & Chenoweth 2008). Using public opinion data from iPoll between 2000 and 2017, we examine whether the decision in *Heller* to affirm gun ownership as a constitutional right increased public opposition to gun control. Through our analysis, we find evidence consistent with the elite school of thought.

II. DATA AND METHODS

We collected data from surveys conducted by the Pew Research Center from 2000-2016, which asked the question: "What do you think is more important—to protect the right of Americans to own guns, or to control gun ownership?" The possible responses were: "Protect the right of Americans to own guns," "Control gun ownership," or "Don't know." Because there was no available data for this question in the years 2001, 2002, 2005, and 2006, we also used polls from ABC News which asked similar questions that measured pro and anti stances on gun control during these years. Given the different format of the available responses, we grouped all responses into three categories: pro gun control, anti gun control, and unsure. In our analysis we focus on the anti gun control group, in line with our aim to find whether the change . Within this group we split all observations into two groups: before and after the courts decision.

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Table 1

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
pct_sum	13	36.300	4.750	26	37	38	43

Table 1. Summary statistics for before group

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Table 2. Summary Statistics for after group

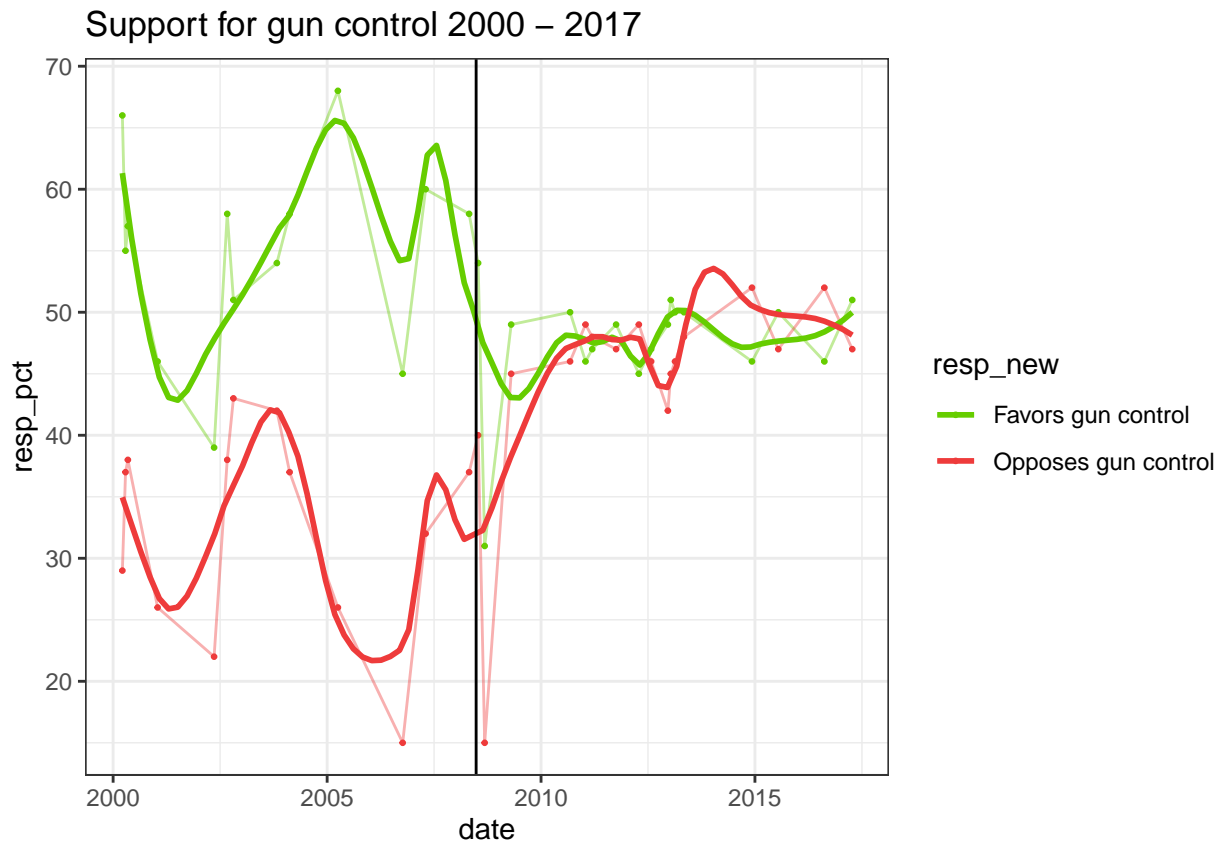
Table 2

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
pct_sum	17	46.700	3.040	40	45	48	52

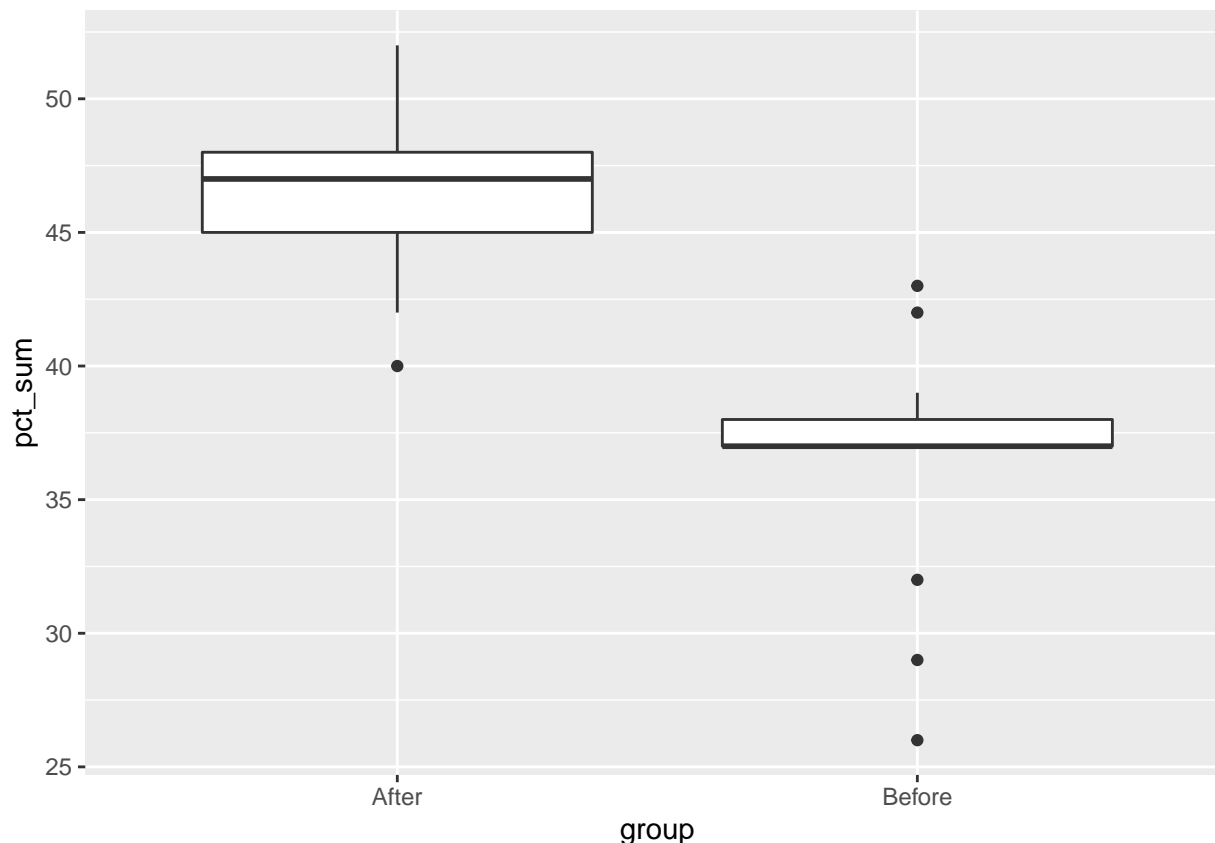
The observed means were 36.300 in the before group and 46.700 in the after group, with a difference in means of 10.4 points.

Before running any statistical tests to determine whether this difference in means could have been obtained by chance, We visualized the change in pro and anti gun control stances over time using a line graph; plotting a vertical line at the point of the Supreme Court verdict on June 26, 2008.

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## 'geom_smooth()' using method = 'loess' and formula 'y ~ x'
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We also created a box plot of the anti gun control opinion distributions.



Given the significantly different variances in the before and after groups, we determined a Wilcoxon Rank Sum test would be most appropriate to analyze the data.

III. FINDINGS

To analyze the likelihood that the difference in means was obtained by chance, we both a t-test for unequal variances and a Rank Sum test.

Table 3. T-test results

estimate	mean_group1	mean_group2	t_statistic	p_value	df	conf_low	conf_high
10.4	46.7	36.3	6.89	1.33e-06	19.3	7.24	13.6

Table 4. Rank sum test results

W_statistic	p_value	alternative
218	7.62e-06	two.sided

The test returned a p-value of $< .001$ %. This p-values is statistically significant and suggests we reject the null hypothesis that the verdict of *Columbia v. Heller* had no effect on public opposition to gun control.

This is consistent with the above line graph, which shows a sharp change in slope around 2008 at the time of the verdict. It appears that before the Supreme Court's decision, public opposition to gun control was generally low (around 1/3 of the population), but steadily increased from 2008 to 2016.

This analysis suggests that an American is 2.7 times more likely to oppose gun control following the courts decision than before it (calculated via Cohen's d). According to the t-test, The difference in means (10.4) has a 95% confidence interval from 7.24 to 13.55.

IV. CONCLUSION

We ultimately find convincing evidence that the Supreme Court decision to affirm gun control as a constitutional right impacted public opposition to gun control after 2008. However, we also recognize that there could have been another salient event that impacted public opposition to gun control in 2008 besides the verdict. Because the data was collected via surveys, there was no random assignment to treatment groups. This means we can't establish a causal relationship between the ruling in Heller and the change in public opinion on gun control. We can only note that our data are consistent with the top down effect. However, the Pew Research Center states on their website that their survey process "is a nationally representative panel of randomly selected US adults recruited from landline and cellphone random-digit-dial surveys." Thus, random sampling was used, which makes our results largely generalizable to the US adult population. Further, the p-value we calculated was extremely small, which supports the significance of our findings and allows us to reject the null hypothesis. The masses supported less gun control after the Supreme Court broadened the Second Amendment. Therefore, Zaller and Lenx offer a more useful theory for understanding the public shift on this issue after the 2008 event.

References:

District of Columbia v. Heller 554 U.S. 570 (2008) Lenz, G. S. 2013. Follow the Leader?: How Voters Respond to Politicians' Policies and Performance. University of Chicago Press.

Zaller, John. 1992. The Nature and Origins of Mass Opinion. New York: Cambridge University Press.
"U.S. Surveys ." Pew Research Center. www.pewresearch.org/our-methods/u-s-surveys/.