Effects of Competition Regulation on Consumer Price Index

James Gillbrand

Introduction

With inflation coming to the forefront of economic concern during and following the Covid-19 Pandemic, the question of how government regulation influences the prices that consumers face has become poignant. In this paper I will determine whether increasing anti-trust regulations reduce the prices that consumers face in their everyday lives.

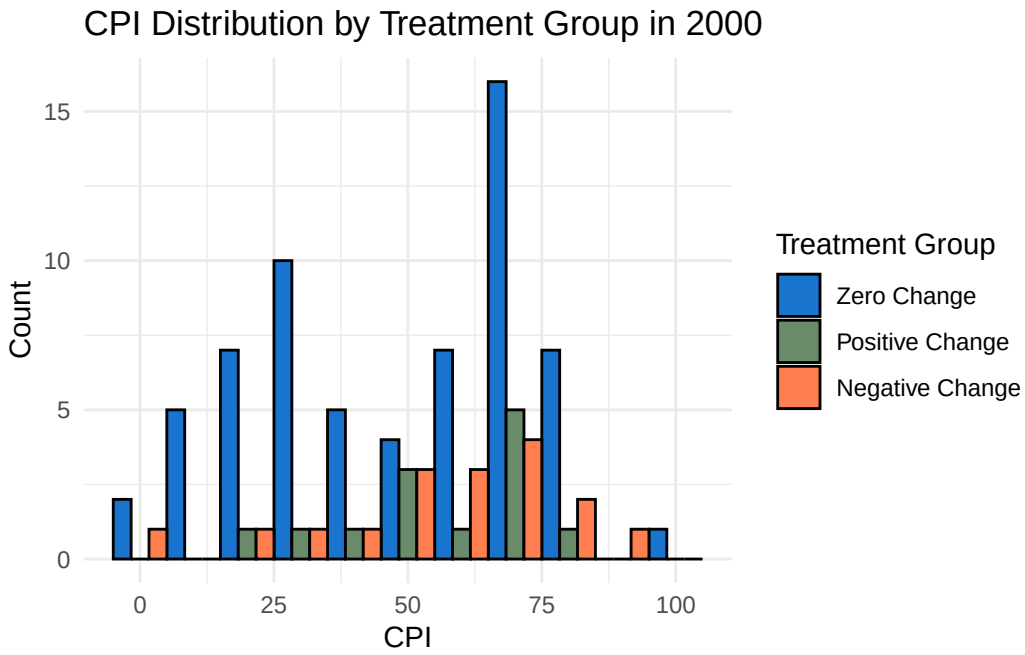
Method

I will leverage a differences in differences approach, comparing countries with changing regulations to those without, on the basis of Consumer Price Index (CPI). My covariate of choice is "Anti-competitition CLI Norm", which is a normalized measure of the substance of a country's anti-competition law. Information on this measure can be found in this paper.

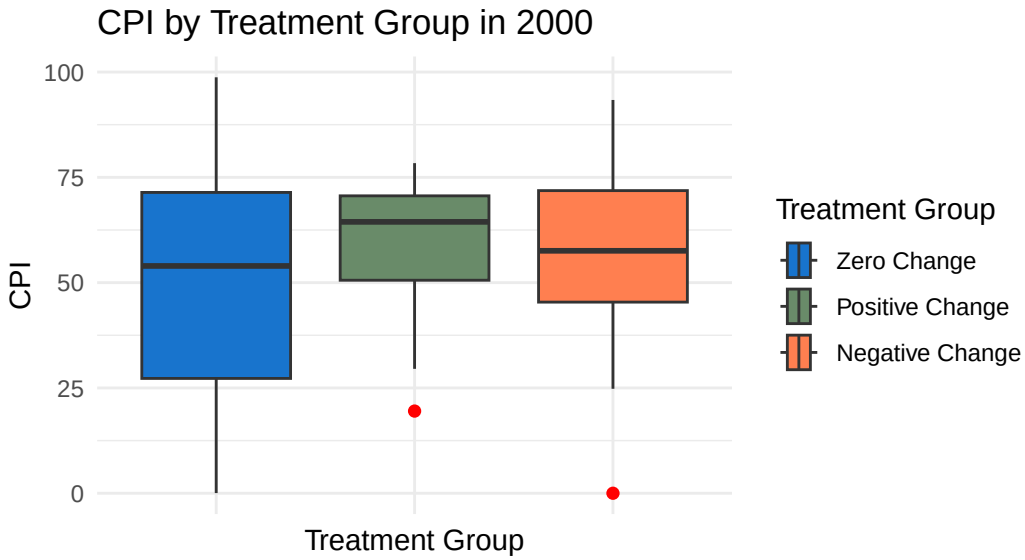
It should be noted that I differ from a standard difference in difference design in one way: I will be comparing initial CLI to the average CLI over the period, as opposed to just the value at the end. This ensure that the difference better reflects the difference between CLI before and during the period.

Defining Treatment Group

My treatment group will be all countries that demonstrated an increase in CLI from their initial 2000 value to the average from 2000-2005. I will also include a second treatment, countries that decreased their CLI over the period. My control will be all the countries that experience no CLI change during the period. Below I will plot CPI numbers for each of these countries in the year 2000 to demonstrate that they are roughly equivalent.



Initially this graph seems to indicate that each of the treatment groups have a difference starting CPI level, which would mean trouble for the parallel trends assumption. However, all three treatments exhibit a leftwards skew and the boxplots below show that they are more similar than they may seem on a histogram, which may be distorted by sample size differences.

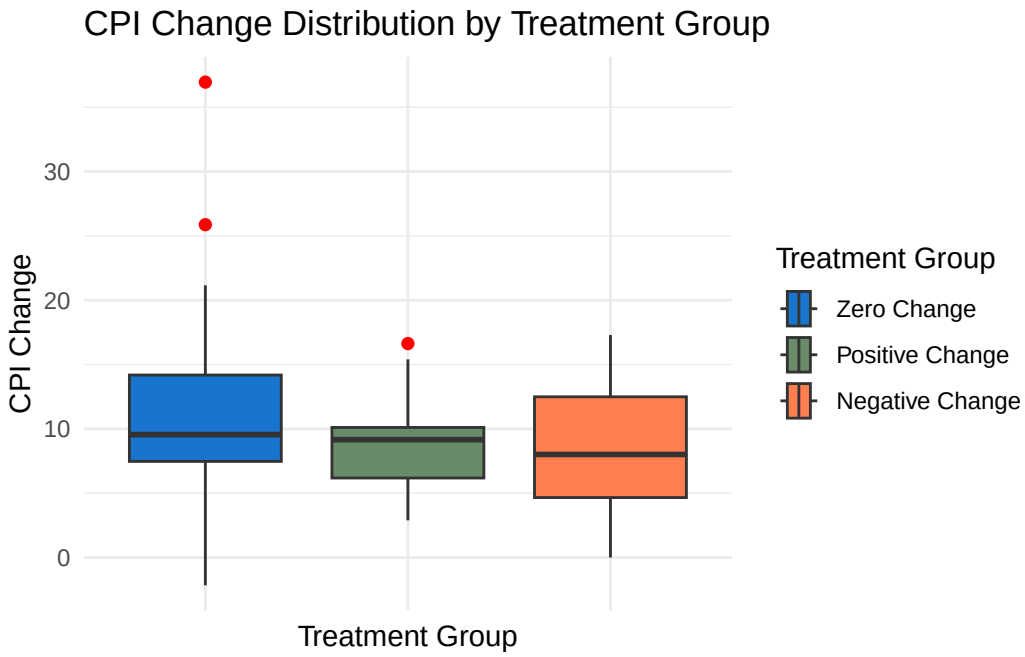


It is clear that the control group has more variance than the others, but this may be due to the

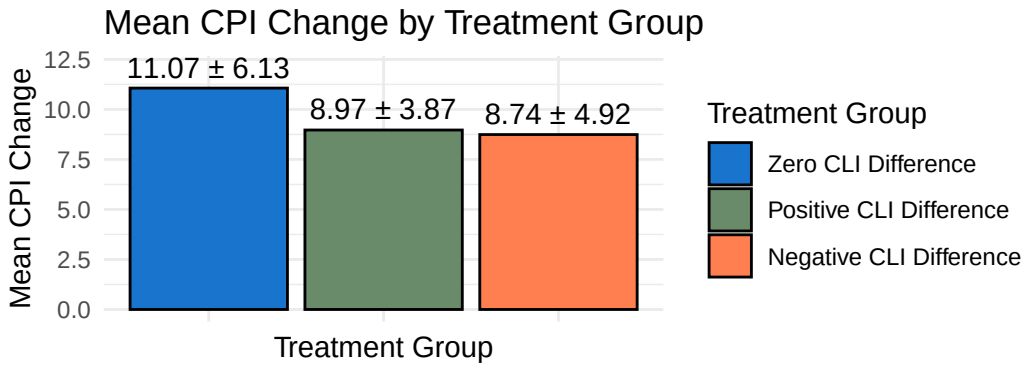
significant difference in sample size. The other similarities between each treatment supports the required assumption of parallel trends.

Difference in Difference

Now I will proceed with the difference in difference design. First I will find the change in CPI for every country in all of the treatment groups on the period 2000-20005.



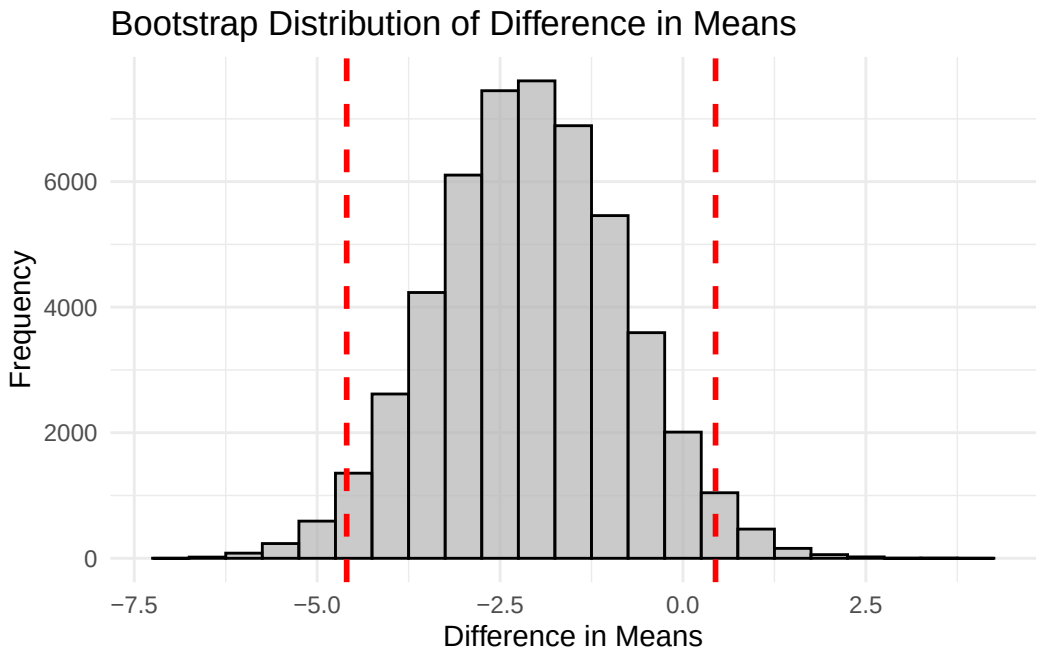
Now let us calculate the average CPI difference for each treatment group. Comparing these values will yield an average total effect that we can interpret.



Based on these calculations, we find that countries who increased their regulations, by any measured amount, reduced their CPI by 2.1% of their 2017 number. We also find that countries who decreased their regulations, by any measured amount, reduced their CPI by 2.33%.

Now to determine whether this difference is a meaningful amount. To do this I want to construct a confidence interval around each difference of means to determine if we can reject the null that there is no difference. However, my samples sizes are rather small and as such it is hard to make the assumption that the data is normal.

To get around this, lets create a bootstrap confidence interval around each of the CPI change numbers to try and get a better grasp on the difference. First, I will compute the interval for the regulation increasing countries.

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95% Bootstrap Confidence Interval for Difference in Means (Increasing Regulation):
 [ -4.597 ,  0.445 ]
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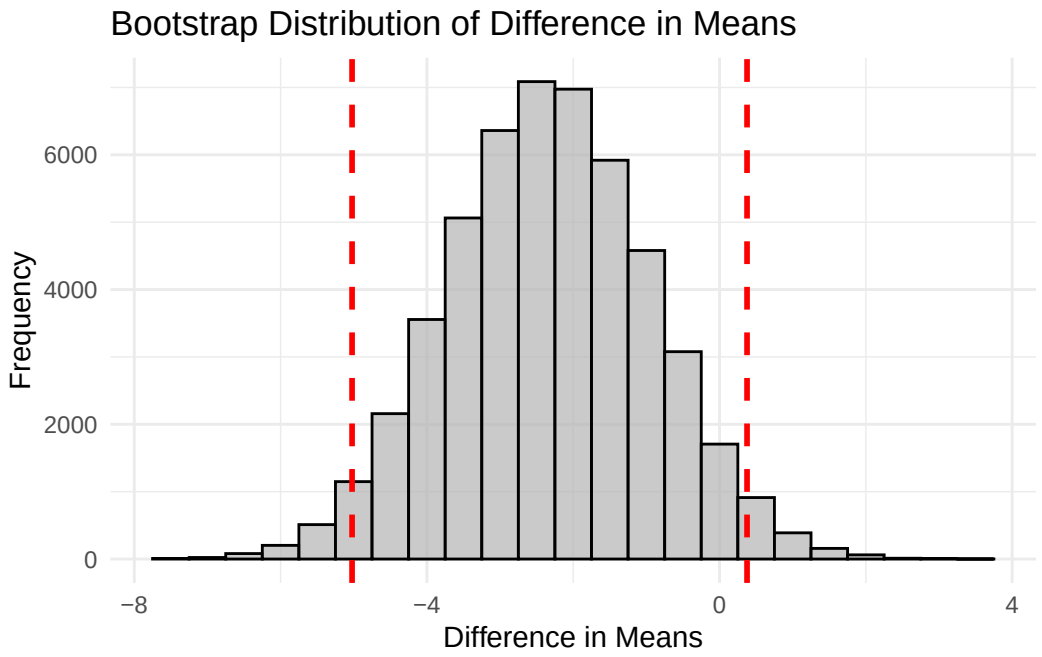
Next, I will perform the same calculations for the countries who relaxed regulation.

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95% Bootstrap Confidence Interval for Difference in Means (Decreasing Regulation):
 [ -5.023 ,  0.376 ]
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Since this confidence interval includes 0 we cannot reject the null hypothesis that the difference between mean CPI change for countries who relax or restrict regulation is distincty from 0 with alpha at 0.05. Hence, we cannot conclude that the Anticompetitive CLI measure has a non-zero effect on CPI, whether it increases or decreases.

Conclusion

I was able to find an average total effect of approximately -2% of CPI for both increases in regulation and decreases in regulation. However, the effect of changes in regulation, increase or decrease, on CPI can't be rejected as zero at a 95% confidence level.