Case Study: Minimum Wage and the NJ/PA fast food industry, con't.

We continue our analysis of minimum wage and employment using Card and Krueger's data about the 1992 New Jersey minimum wage increase. We now use a different version of the data that contains covariate and outcome values for each store both before and after New Jersey's policy change. This dataframe can be loaded as `fastfood2` from the `stat20data` package.

1. Describe in words how to construct a pre/post estimate for this dataset, and how to construct a difference in difference estimate. What are the differences in the assumptions we rely on between these two designs? Which do you think is more plausible?

2. What additional data would we need to have available to conduct an interrupted time series design? How would the associated assumptions differ from those in a pre/post design?

3. Sketch a line plot showing how you anticipate employment levels will change between the two timepoints, with one line averaging over all New Jersey restaurants and one line averaging over all Pennsylvania restaurants.

4. Write code to create a line plot like the one in the previous question and construct it. Describe similarities and differences between the hypothesized and actual plots.

5. Write code to compute the pre/post estimate and difference in difference estimators. Run the code and compare the values obtained to each other and to the effects you obtained from the `fastfood1` dataset in the previous problem set.

6. Write code to construct a bootstrap confidence interval or a hypothesis test for one of the estimates in the previous question, making sure to permute or bootstrap restaurants rather than individual observations.

7. Recently a new minimum wage of $20 per hour went into effect in California. Raising the wage to this level was a politically controversial decision. Give an example of both predictive and causal claims that proponents or detractors of the law might make and describe how they are different.

8. To what extent is your analysis of Card and Krueger's fast food data relevant for evaluating the claims from the previous question? To the degree it is relevant, what does it tell us about the claims?