Statistics 645 - Assignment 10

(Due Tuesday, November 24, 2020, 11:55pm)

1. Consider the *lalonde.exp.panel* data given in the `qte` package of `R`. `https://rdrr.io/cran/qte/man/lalonde.html#heading-0`. The outcome is real earning in 1978, treat is a binary treatment variable (a special job training), and consider age, years of education (education), black, hispanic, married, high-school passed (nodegree) as the confounder. Estimate the causal effect of the treatment on the earning. Use the regression standardization method, state all the assumptions. Find the 95% CI for the treatment effect.

2. Consider the `rott2` dataset in the package `AF`. Estimate the causal effect of chemo on the survival through difference in the mean and median survival time of the two counter factual outcomes. Use the IPTW method and use CBPS. After using CBPS, show that covariates are balanced. Also, obtain the 95% CI for the treatment effect.