Basic Information

- Client: Sijiu Wang
- Affiliation: Public Health Sciences at University of Chicago Biological Sciences Division

Problem

The client is studying the effect of HCBS (a type of home-based, long-term care service) on PAC (post-acute care) services. The dataset has 700,000 observations from about 20 hospitals. Each observation is one individual, and the covariates include demographic variables, comorbidities, HCBS, and PAC. The dataset was collected over the course of three years.

The client was interested in using fixed effects(FE) like hospital level effect with propensity scores (PS) weighting in a regression model. The client had run logistic regression with fixed effects on the hospital level on samples of the dataset. If we denote the remaining covariates by X, the propensity score for the i-th individual is defined as $e_i = \mathbb{P}(\text{HCBS}_i = 1|X_i)$.

The client's questions were about using PS weighting and FE weighting together, and if PS and FE could be used together on logistic regression. The client could fit a linear regression model with propensity score weighting but did not know how to do it in case of logistic regression.

Method Used

Suggestions

- It does not make a lot of sense to do linear regression since the response is a binary variable. Logistic regression without PS weighting is better.
- If the research question is about association of HCBS and PAC (rather than causation), using logistic regression model with all the other covariates without PS weighting is advisable.