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Student Project Checkpoint

Our research question is how does the presence of charter schools affect the demographic makeup of nearby public schools? To answer this question, we plan to use the National Center for Education Statistics Common Core of Data, which includes information on school type, location, and enrollment by sex, race, and eligibility for the free or reduced lunch program. We’ve downloaded this school-level data and are currently in the process of putting it together into one data file. The outcomes we will look at for the schools are percentage enrollment of black students, white students, Hispanic students, and students eligible for free or reduced lunch. These values could theoretically range from 0 to 100 although we do not expect to see those extreme values.

The data is updated annually, starting in 1986 and continuing through 2017 giving us a *T* of 31. The number of schools is not constant from year to year as some schools open and close. There is some missing data in the dataset, but given that we haven’t fully compiled all of the data together we don’t know to what extent or if there are any patterns of omission. The observations are certainly related over time. I imagine the enrollment characteristics of a school are highly correlated with those same characteristics from an earlier year. Treating this as a simple least squares regression would violate the assumption of *iid* errors.

The methods we have learned about so far will help us to analyze this data in two ways. First, we can deal with the violations of the classic Gauss-Markov assumptions. We plan to investigate the data to see what times of systematic processes could be happening. Second, we also want to examine the cumulative effect of charter school presence over time. We will use our model to show predicted enrollment figures over time, rather than simply reporting a marginal effect.