**PROBLEM 3 – Estimating Treatment Effects from an RCT**

**3.1. Test for observable differences between treatment and control baseline characteristics**

You will now determine whether the treatment group and the control groups differ in their characteristics. Make comparisons within blocks, since in the original study the random assignment was only random within block (note: use the variable *blockid* for the fixed effects). There are multiple ways to include block **fixed effects** in Stata – you may use whatever method you wish. For simplicity, you only need record the differences between treatment and control and p-values. Your answers will be slightly different if you use regression technique to the compare the differences (why?)

|  |  |  |
| --- | --- | --- |
| **Variable** | **Difference** | **p-value** |
| African-American |  |  |
| White |  |  |
| Latino/a |  |  |
| Female |  |  |
| Baseline Reading Score |  |  |
| Baseline Math Score |  |  |

**3.2 Discussion and differences with the printed table**

Compare the Table you created above to Table V.3 on pg. 25 of the TFA article. Is it an exact match? What are the reasons why the tables are different? Should we interpret the Table created in 3.1 to confirm that random assignment was successful? (For 3.2, read Table V. 3 carefully)

**3.3 Causal effect**

What is the impact of TFA corps members relative to all comparison teachers on student math scores? Estimate this impact both without covariates and including control variables for student baseline test scores in math and reading, dummy variables for students’ race/ethnicity, and a dummy variable for gender. Remember that you will want to control for block in all models. Remember to comment what happens to the effect when you add more controls.

**3.4 na\_m as an outcome variable**

Test scores measure a student’s knowledge of the material as well as their willingness to persevere on the test. Use a similar specification to that you used in (3.3) above, but with “number attempted” as the dependent variable for math (na\_m). Again, run the regression with and without controls. Were there any differences in the numbers of questions attempted by students in TFA classes and comparison classes?

**3.5   For this come up with your own choice of other research question using this data.** The question should be a causal question. Your response should state your research question and interpret your finding similar to 3.3 and 3.4. If you do choose any student level outcome, your model will mimic the models in 3.3 and 3.4. Include this Stata output in your do and log files.

Whether the difference in means of certification (regular, initial, temporary, emergency and other) between students you have assigned a TFA vs. non-TFA teacher is statistically significant at the 95% level of significance.