**Weekly Exercise # 3**
**Balance Tables**

**Objective:** the purpose of this exercise is to learn how to create a balance table via a replication exercise.

**Data:** Data for this exercise are from Muralidharan et al. (2019).[1] A list and description of the variables are provided in the appendix.

**Instructions:**

1) Please submit your assignment via Canvas
2) Your submission should include a .do file (or R file) with your code and annotations and a pdf with a brief interpretation (a short paragraph or a few sentences for each question) of the analysis.

**Exercise:**

Open dataset "mindspark_balance.dta"

**Q1: Replicate balance table from Muralidharan et al. (2019) – Table 1**

a) First, replicate Panel A of Table 1. These are students who were present in the baseline. (**hint:** round == 1). You do not need to replicate the formatting only replicate the estimates correctly to two decimal points.
b) Now replicate Panel B of Table 1. These are students who were only present in the endline (**hint:** round==1 & in_r2==1). You do not need to replicate the formatting only replicate the estimates correctly to two decimal points.

**Q2: Adding more baseline covariates to the Balance Table**

There could be other baseline covariates that are important and predict learning outcomes. For instance, private tutoring is a common phenomenon in these settings. Thus, we might want to check if there is imbalance on whether a student attends any private tutoring in the baseline ('any_tuition') and the number of hours a student spends on private tutoring in Math ('st_tui_math_hrs').

a) Re-run your analysis for Panel A with these two additional covariates.
b) Now re-run the analysis for Panel B with these two additional covariates.

**Resources:**

1) http://repec.org/bocode/e/estout/hlp_estpost.html (hint: the authors' preferred code in STATA is 'estpost ttest' followed by 'esttab' to generate these tables).
2) https://dimewiki.worldbank.org/Iebaltab

[1] Muralidharan, Karthik, Abhijeet Singh, and Alejandro J. Ganimian. "Disrupting education? Experimental evidence on technology-aided instruction in India." *American Economic Review* 109.4 (2019): 1426-1460

## Appendix:

| **Variable name** | **Description** |
|---|---|
| *st_id* | *Student ID (unique ID)* |
| *round* | *Round of data collection (Baseline or Endline)* |
| *control* | *Control student* |
| *st_age1* | *Age* |
| *st_female1* | *Female* |
| *m_theta_mle1* | *Baseline Math test, IRT-scaled score (MLE)* |
| *h_theta_mle1* | *Baseline Hindi test, IRT-scaled score (MLE)* |
| *ses_index* | *SES Index* |
| *d_sch_grade4* | *Grade 4* |
| *d_sch_grade5* | *Grade 5* |
| *d_sch_grade6* | *Grade 6* |
| *d_sch_grade7* | *Grade 7* |
| *d_sch_grade8* | *Grade 8* |
| *d_sch_grade9* | *Grade 9* |
| *in_r2* | *Present at endline* |
| *any_tuition* | *Attends tuition in any subject* |
| *st_tui_math_hrs* | *Hours of extra math tuition per week* |