

## ECO3211 Problem Set 1

Q1. Describe how one can design a hypothetical randomized control experiment to study the effect of having a female mathematical teacher on the math test scores of middle-school students.

Q2. Use the academic year 2013-2014 baseline survey data from the China Education Panel Survey (CEPS) to study the effect of having a female mathematical teacher on the math test scores of middle-school students.

Steps:

1. Download the data and questionnaires from Blackboard or <https://ceps.ruc.edu.cn/index.php?r=index/index>.
2. Merge the samples of students, parents, classes, schools. (Stata command: merge)
3. Keep those schools in which the students were randomly assigned into different classes when they enrolled in Grade 7.
4. Define the treatment status: treatment=1 if the math teacher is a female.
5. Check the balance of some predetermined characteristics of students between the treatment group and the control group.

*Examples of the predetermined characteristics (determined before Grade 7): Gender, ethnicity group (being Han), being local residents, having normal birth weight, being the only child, father's years of schooling, mother's years of schooling, had preschool education, math scores at primary school, etc.*

6. Compare the outcomes related to math study between the treatment and control groups, interpret your empirical results.
7. Check the heterogeneous effects across the gender of students, interpret your empirical findings.

Notes:

The problem set 1 will due on Oct. 17, 2020. You should turn in three separate documents electronically: one that contains your typed answers to the problem set questions, one well-organized and well-commented Stata do file, and one Stata log file.