

論文の内容の要旨

Essays on Teacher Effects on Students' Academic Outcomes and Preference Formation

(生徒の学業成績と選好形成に対する教員効果についての研究)

石 澤華 (SHI ZEHUA)

My dissertation focuses on school teacher effects on students' outcomes from three perspectives: 1) the effect of teachers' pastoral and managerial role on students' academic outcomes, 2) the correlation between teachers' preferences and teacher quality, and 3) the transmission of teachers' preferences to students' preferences. The existed studies show that teachers play crucial role on both short-term outcomes and long-term outcomes of students. However, the mechanism behind the teacher effects is far from clear. Therefore, this dissertation expands new dimensions of pastoral and managerial role, preferences of teachers, and preferences of students to investigate how teachers impact on various students' outcomes.

In chapter 2, I review the education system in China and explain the data I used in this dissertation. The most important aspect to my study is the randomization of class assignment from students to teachers in middle schools. The randomization is used as the basis for the identification strategy in the following analyses. Then, I explain the data used in all analyses of this dissertation. All data of this dissertation are obtained from the education ministry of Qiyang county, Hunan province, China. The education bureau implemented a survey to all students in grade 7 and 8 and their teachers in 5 middle schools at the end of school year on July 2018. Student survey includes students' characteristic information and their attitudes toward each subject. Teacher survey consists of teachers' demographics. Besides the survey, I also measure and collect the preferences of both students and teachers using Chinese version of global preferences survey designed by Falk et al. (2016). The questionnaire has 8 dimensions of preferences which are risk-taking, time discounting, trust, altruism, positive reciprocity, negative reciprocity, self-assessment of math ability and procrastination. I match these surveys to 3 waves of students' test scores including the entrance baseline test score and two

waves test scores of final exam, then I get the student-teacher matched panel data used in this dissertation.

In chapter 3, I examine the effect of teachers' pastoral and managerial role on students' academic outcome. I take advantage of classroom teacher in China who are responsible for both students' academic achievement and students' non-academic stuffs to investigate the effect. I find that classroom teachers have a significant positive impact on their students' test scores in their specific subjects: a student's test score in a subject taught by his or her classroom teacher will increase by a standard deviation of 0.163 compared with those subjects taught by other teachers. I also investigate the possible mechanisms that might drive this "classroom teacher effect." I find that classroom teachers tend to have more interaction with their own class than with other classes they teach both inside class and outside class beyond teaching or giving lectures. Students are willing to spend more time on the subjects taught by their classroom teachers and are also more likely to obey their classroom teachers. Moreover, I find that the impact of a classroom teacher varies by subject, student characteristics and quantile of test score. These results suggest that classroom teachers are better able to improve their students' academic performance through both their teaching behaviors and their non-academic interactions with the students.

In chapter 4, I investigate the correlation between teachers' preferences and teacher quality in addition to estimate the magnitude of teacher value-added. I provide a new dimension, teacher preference, to identify a good teacher. I find that teachers have a significant impact on students' academic outcomes. One standard deviation (SD) improvement in teacher value-added significantly raises normalized test scores by approximately 0.025 SD in math and 0.093 SD in English. However, it is just 0.019 SD in Chinese and insignificant. Moreover, I examine the correlation between teachers' preferences and teacher value-added. I find that more altruistic teachers have a higher teacher value-added, while teachers who like to take risks have a lower teacher value-added. I further investigate possible mechanisms to explain how altruism and risk-taking are associated with the teacher value-added by mediation analysis. I find that criticisms and communication explain 5% and 49% of the total correlation between altruism and teacher value-added, respectively. However, based on the data of teacher behaviors currently available, I find that none of these behaviors can explain how risk taking coming into play. These results suggest that teachers' preferences can be good predictors of teacher value-added.

In chapter 5, I explore the transmission of teachers' preferences to students' preferences. For this purpose, I calculate the correlation between preferences of teachers and students. I find a strong and significant correlation between the procrastination and risk attitudes of classroom teachers and their students. In other words, classroom teachers who are more likely to postpone tasks, or who are more willing to take risks, raise their students with similar traits. Then, I verify the correlation we found above is a direct relationship between classroom teachers' preferences and students' preferences rather than driven by other confounders such as: sex and age of teachers and students. Moreover, I do not find any evidence that a significant correlation in preferences between subject teachers and their students. This result indicates that there is no preference sorting at school or region level and that, more importantly, transmission may occur beyond teaching or giving lectures inside the class. Overall, chapter 5 provides a new field of study to understand mechanism of teacher effectiveness through preference transmission from teachers to students.

Based on the all findings, I conclude in the chapter 6. Teachers have impacts not only on students' academic outcomes through behaviors and preferences of teachers but also on students' preference formation. I hope these findings open a new field to help us understand the mechanism behind teacher effects.