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A Professor Like Me: Influence of Professor Gender on University Achievement

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A Professor Like Me: The Influence of Instructor Gender on University Achievement

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Abstract: Many wonder whether teacher gender plays an important role in higher education by influencing student achievement and subject interest. The data used in this paper helps identify average effects from male and female university students assigned to male or female teachers. In contrast to previous work at the primary and secondary school level, our focus on large first-year undergraduate classes isolates gender interaction effects due to students reacting to instructors rather than instructors reacting to students. In addition, by focussing on university students, we examine the extent to which gender interactions may exist at later ages. We find that assignment to a same-sex instructor boosts relative grade performance and the likelihood of completing a course, but the magnitudes of these effects are small. A same-sex instructor increases average grade performance by at most 5 percent of its standard deviation and decreases the likelihood of dropping a course by 1.2 percentage points. The effects are similar when conditioning on initial ability (high school achievement), and ethnic background (mother tongue not English), but smaller when conditioning on mathematics and science courses. The effects of same-sex instructors on upper-year course selection are insignificant.

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Executive Summary

Role model effects are frequently considered key for explaining gender differences in education. This study explores the potential importance of gender role models in post secondary education. Our study is the first to estimate the impact of having a same-sex instructor at a large Canadian university on classroom performance in using both within student and within instructor variation. We examine the differences in academic achievement observed, on average, when males students end up in a class with male instructors compared to female instructors, and differences that arise when female students end up with female instructors instead of male instructors. Since we focus on large first-year undergraduate classes where teachers do not grade students' exams and students do not typically receive differential treatment from teachers, we can more confidently equate gender interaction effects with role-model effects. In addition, by focussing on university we examine the extent to which gender role model effects exist at later ages.

We find that students indeed react to an instructor's gender depending on their own gender; however, the overall significance of this impact is small. Students taught by a same-sex instructor are about one percentage point less likely to drop a course (a 10 percent change from the mean). Relative grade performance is about 1 to 5 percent of a standard deviation better for students with a same-sex instructor. The small effects appear driven more by males performing worse when assigned to a female instructor, with females performing about the same. They also appear more due to social science courses than math or physical science courses. Students with English as their mother tongue and taking social science courses are somewhat more likely to take subsequent courses in related subjects taught by a same-sex instructor.

Our grade score estimates are generally smaller than the 5 to 10 percent standard deviation effects found at the primary school level (using similar methodology), but not by much. Two possibilities may explain the difference. First, same-sex instructors may matter more at earlier ages, when development of cognitive and non-cognitive ability occurs more rapidly. Second, reactions from students over the gender of a teacher may matter less than reactions from teachers over the gender of a student. University instructors do not typically interact on a one-on-one basis with students in large first year classes and do not typically grade tests, so there is less chance for instructor bias to influence performance. Our results are also not likely attributable to students being reminded of particular stereo-types about themselves due to instructor gender, since there are many students of both sexes in the large classes we examine. Gender interactions at the university level are most likely due to role model effects.

We interpret these findings to suggest instructor gender plays only a minor role in determining university student achievement. Nevertheless, on the criteria that influencing achievement is difficult, some may still find our small effects from manipulating only instructor gender impressive. Instructor gender appears to affect the behavior of at least some students, especially with respect to course completion.