ECON 398 – Advanced Econometrics

Annotated Bibliography & Research Question by Kien Vu

1. Annotated Bibliography:

Eric Bettinger, Bridget Terry Long. "[Do College Instructors Matter? The Effects of Adjuncts and Graduate Assistants on Students' Interests and Success](https://ideas.repec.org/p/nbr/nberwo/10370.html)," [*NBER Working Papers*](https://ideas.repec.org/s/nbr/nberwo.html) 10370 (2004), National Bureau of Economic Research, Inc.

This paper examines the effect of part-time and graduate assistant instructors on the enrollment and success of students in those courses. There has been discussion on whether the increasingly prevalent use of these instructors affect the quality of teaching and research at universities, and the researchers use data from 12 public universities in Ohio to compare outcomes of students taking introduction classes with different types of instructors at similar courses through fixed effects and value-added estimations. While the results showed a generally negative effect of adjunct professors and graduate students’ instruction on later interest in the subject, it is often small, and the effect is negligent when future performance is concerned. However, the adverse trend is more significant for humanities subjects and younger instructors. The study provided a concrete analysis of different instructors on course performance in a well-controlled setting, and provides insights on the possible importance of teacher’s age and subject matter. However, the ambiguity of whether the effect of adjuncts/graduate assistants affect future student performance, coupled with deficiencies of the data regarding future earnings/achievements and lack of private universities/faculty seniority make room for more research on higher education teaching and outcomes.

Fabian Waldinger. "[Quality Matters: The Expulsion of Professors and the Consequences for PhD Student Outcomes in Nazi Germany](https://ideas.repec.org/a/ucp/jpolec/v118y2010i4p787-831.html)," [*Journal of Political Economy*](https://ideas.repec.org/s/ucp/jpolec.html), University of Chicago Press, 118, no. 4 (2010): 787-831.

While the selection bias of students to more prestigious education programs has a well-proven effect on the relationship between school quality and earnings, the actual effect is not as clear partly due to this bias. This analysis of German mathematics PhD programs around the Third Reich period uses an arguably exogenous drop in faculty quality to find the effects between faculty quality and future success, in this case mainly in academia. Using a detailed record by officials at the time from 1923 to 1938 and the recorded history of students’ achievements in academia, the author used the change in faculty quality measures (based on citations and publications in top journals) and change in student-faculty ratios as instruments, while controlling for cohorts and departmental fixed effects and other demographic factors. The coefficients on the instrument that represents the effect of faculty quality on student outcomes, are strong positive results, while student/teacher ratio results are insignificant. By using an unique and robust method to eliminate endogeneity, the researcher establishes causality on faculty quality and students’ future success in academia during this period. However, while German mathematics in the 30s is a flourishing academic environment not unlike the US in the present, structural differences such as technology can prove the conclusions not applicable. Moreover, success in academia is different than our analyses of education on earnings, with different dynamics that needs to be properly compared.

Stacy Berg Dale, Alan B. Krueger. “Estimating the Payoff to Attending a More Selective College: An Application of Selection on Observables and Unobservables,” *The Quarterly Journal of Economics* 117, no. 4 (2002): 1491-1527.

This study looks into the earnings premium from attending a more selective college by providing an approach to control for variables observed by the admissions committee of the college and thus aiming to avoid selection bias. While certain variables are already observable by the researchers and included in the analysis, the “unobservables” can be implied through the admission decisions of the colleges on students and thus controlled in the paper by acceptance/rejection dummies. The results received by the researchers were that when controlled by a model that takes to account observed variables and selection dummies, attending a more selective college does not suggest greater income in the future, but the decision to apply does. The earnings premium of selective schools in the uncontrolled models might then be correlated with certain unobserved ability of the student that the admissions committee spotted, however the students might not always choose them because of fit. The paper, while suggesting that school selectivity might not be important for future student income when controlled by the model, also proposes that there might be a more significant premium for lower-income students. However, some of the shortcomings of the study includes that using only 30 highly selective colleges in their sample is not representative of the education market, and also that the college quality is only based on test score averages and tuition, which obscures more indicative measures.

Lei Zhang. “A value-added estimate of higher education quality of US states,” *Education Economics* 17, no. 4 (2008): 469-489.

As much of the education landscape of the US is under the influence of state authorities, the author aims to examine state education policies and its effect on student earnings through a value-added approach through public universities. In order to do this, the paper proposes to form a college quality measure controlled for student characteristics through a state fixed effect, which aims to be more inclusive and indicative in terms of criteria for quality, including those such as intake of out of state students, average normalized GPA, and “loss” of college graduates in labor market. Out of state students are often more wealthy and education-oriented, while college graduates moving away means that they are able enough to find employment elsewhere, which might suggest something about the education system of the home state. Multivariate regressions of college quality on faculty quality (% with doctorates) suggests a positive relationship, but due to data only having one cross-section, it cannot suggest causality. However, the method of quantifying college quality used here can be quite useful in truly understanding college levels of achievement and competitiveness.

Wayne A. Grove, Andrew Hussey. "[Returns to MBA quality: Pecuniary and non-pecuniary returns to peers, faculty, and institution quality](https://ideas.repec.org/a/eee/labeco/v26y2014icp43-54.html)," *[Labour Economics](https://ideas.repec.org/s/eee/labeco.html)*, Elsevier, 26, vol. C (2014): 43-54.

The paper contributes to the discussion on returns to education by using MBA data and constructing a more accurate measure of quality than the SAT or tuition-based measures utilized in the past such as by Dale (2002), including indices of school, peers and faculty quality. To control for the selection bias, two stage least squares was used for each quality variable with the others as instruments. Another distinction of this analysis is the inclusion of pre-schooling earnings, which allows for individual fixed effects specifications when regressing with future earnings. Other, non-pecuniary returns such as job satisfactions, pay, promotions and skills-based were also included. The results by the 2SLS and fixed effects regressions of earnings with quality show a strong positive relationship even when controlled for other factors, however only peer quality proved significant when the three indices were included. The non-pecuniary results were not as significant, and school quality no longer is exceptional. While the paper’s analysis was strong when looking at MBA returns, there are certain inherent differences between MBA and other post-secondary degrees that affect the relationship between quality and earnings. Moreover, the paper points out certain transparency issues that while not unique to the dataset, can affect the results.

1. Research Question:

**Holding other conditions constant, an increase in quality of faculty in the undergraduate level can improve student outcomes in terms of job competitiveness.**