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Essays on Education and Job Matching

My research centers on the transition from schooling to the labor market among college graduates, focusing on job matching behavior during the workers' early career period. In particular, I empirically study how the match between skills developed in college and skills required for an occupation relate to labor market outcomes.

In my job market paper, "Curriculum and Occupation Matching: Multidimensional Skills Mismatch among College Graduates", I study the relationship between worker-job match quality and labor market outcomes using a newly constructed empirical measure of worker-job match that matches workers’ schooling characteristic to their occupations' characteristics. Using data from the 1997 National Longitudinal Survey of Youth and the Occupation Information Network, I develop a multidimensional “knowledge mismatch” index that measures the disparity between a worker’s college coursework and his occupation's knowledge requirements. This index proves to be a more refined measure of worker-job match quality compared to other empirical measures previously developed. Using the knowledge mismatch index, the results show that workers who are mismatched have lower wages relative to their peers. These workers are more likely to switch occupations early in their career, however the negative impact of an early mismatch on future wages is persistent. Although the disparity in wages among workers who match well immediately after graduation compared to workers who eventually switch into a better matched occupations does decrease over time, it is still prevalent. The results suggest that a more a refined empirical measure of worker-job match quality, such as the knowledge mismatch index, is required to evaluate labor market outcomes and indicates the need to incorporate knowledge matching when studying worker-job pairings. The results can also assist in explaining the lack of synchronization between in education and the labor market which often results in overeducation and field mismatch.

In "Occupation Matching and Mobility among STEM College Graduates", I extend my job market paper by evaluating the match (using the knowledge mismatch index) of workers with a high concentration of science, technology, engineering, and mathematics (STEM) coursework. I find that, among workers with a high concentration of STEM courses, high ability workers obtain superior occupation matches compared to their low ability peers. These workers also maintain their high match and stay in a similar field for occupations during their early career. This result holds when accounting for the change in the labor market composition of workers in STEM occupations. Although low ability workers with a high concentration of STEM courses are less likely to have a strong occupation match compared to their high ability counterparts, they are more likely to switch into better matched occupations during the early career period. In fact, low ability STEM workers who begin in occupations that require high levels of inductive, deductive and mathematical reasoning are able to match as well as their high ability counterparts and diminish any wage disparities within five years after graduation. Non-STEM workers have poorer matches compared to STEM workers at most ability levels, although the disparity in job matches is greater among low ability workers.

In my third paper, "Education and Job Matching: A Cohort Comparison", I examine the differences in job matches based on schooling qualifications and compare the changing impact of early career job matches on labor market outcomes between two college-educated age cohorts. I define job match based on degree earned (overeducation and undereducation) and field of study (major mismatch). Data for the older and younger cohort is from, respectively, the NLSY79 (born 1957-1964) and the NLSY97 (born 1980-1984). I find there are greater wage penalties and lower wage growth among workers who are initially overeducated and mismatched in major in the younger cohort compared to the older cohort; this disparity does not hold among undereducated workers. Job mobility rates are similar across the two cohorts, although the likelihood of changing to a better matched job among overeducated workers is higher for the older cohort. In fact, overeducation is a more persistent phenomena in the early career period for the younger cohort. The results suggest the growing importance of developing strong matches during the early career period, as we observe the younger cohort facing more persistent penalties for early mismatches compared to the older cohort due to the changing nature of the job market landscape.