

Mid-Term Answers

1) The introduction of power looms was similar to the computerization of jobs in that both are examples of technology eliminating a significant number of jobs. The two technologies are different in that power looms displaced skilled workers – weavers who had taken some time to learn their craft – and increased demand for low skilled workers – the farm laborers. Computerized work has the opposite effect displacing lower skilled workers – e.g. assembly line workers – and increasing demand for higher skilled workers. If computers are “skill-biased” technical change, the power looms were “low-skill bias” technical change.

2) a) The projections may be misleading because they ignore the kinds of changes in skill requirements that can happen *within* an occupation. For example, before computerized modules, auto mechanics didn’t have to know much about electronics or how to use computerized testing equipment including the ability to read testing equipment manuals. They need to know all of that today and so a new auto mechanic typically has to attend one or two years of post-high school training.

b) An economist usually measures shortages by tracking prices and quantities. Suppose you collect data in the coming years that shows that the number of college educated workers grows faster than the number of high school educated workers. If there really is no strong demand for college educated workers, the wages of college educated workers should fall (because they are in excess supply) and the college-high wage gap should close.

What occurred from 1980 through the present was the opposite: the number of college graduates grew faster than the number of high school graduates and yet the college-high school wage gap *grew*. It was this combination that demonstrated that labor market demand was shifting toward more educated workers.

3a) In the standard human capital model, you should acquire all your education at the beginning of your career so you can benefit from the higher earnings for as long as possible through your career. If we think about a career as having a fixed retirement date, postponing education for a year means you are substituting a low earnings year for a high earnings year.

3b) It probably would have been higher in the 1980s than the 1990s because of the very sharp increase in the return to education between the late 1970s and the mid 1980s. Because of this sharp change, it is likely that there were many people in the late 1970s who decided not to go beyond high school since the returns to education were very low (*The Overeducated American* reading) but then went back to school when the returns increased so much beginning with the 1980-83 blue collar recession. The return to education didn’t change so much from the 1980s to the 1990s, so there aren’t likely to be

as many people going back to school in the 1990s to benefit from a higher return to education.....the people who were ever to acquire a lot of education would have already done it earlier.

3c) The assumption is that the incomes a person can receive from the various levels of education are known in advance. Although this assumption need not hold literally in order for the model to be useful, the wide fluctuations in the return to education over between the late 1970s and mid 1980s might make us want to consider a richer model that allows for some uncertainty in the return to education.

4a) The t-statistic is $-2.89/.93$, which is about -3.1 . Thus, it looks from this regression that the teacher having a masters degree has a statistically significant negative impact on a student's test score. If you are to believe this, then it would be the case that you probably don't want to have a teacher with a masters degree.

4b) There are probably some important variables missing from the regression. Perhaps the teachers with the advanced degrees are placed with students who are lower-performing anyway, and this may not be adequately controlled for in the regression. This would explain why we would observe a negative relationship in the data between a masters degree and low test scores by students without the masters degree being the cause of the low test scores.

4c) The best thing to do would be a randomized controlled experiment. Take a set of students and a set of teachers, some of whom have a masters degree and some of whom do not. Randomly allocate the students to the teachers (in a way that keeps class size as equal as possible), and compare the average score of the students with an MA teacher to the average score of the students without an MA teacher on some achievement test given later on.