

## Lecture 5: When Did Earnings Become so Dependent on Education?

### Selected submitted questions from last lecture:

Q: What was the cause of the decline in the concentration in wealth in the UK and other European countries?

A: The stock market crash and subsequent depression wiped out a lot of wealth. After WWI and WWII, European countries adopted very progressive income taxes that limited wealth accumulation.

Q: Since parent-child interaction influences a child's educational attainment, shouldn't there be a parent-level interaction to improve the educational attainment of children?

A: Some parental problems are hard to "fix" such as mental illness, divorce, and poverty. This isn't an either or proposition where you can only work with the parents or only work with the children. In many cases, it may be best when interventions focus on both the parents and the children.

### Basic question of this unit:

Do (very) early childhood interventions have a very big payoff?

If its an issue of scientific inquiry, we need to structure out approach in the following way:

- 1) Theory of plausibility
- 2) Hypothesis
- 3) Data

Education qualifications at age 26 is a market in our data. In other words, we are looking ultimately at what determines this outcome by first looking for correlations between earlier test scores and this data.

	<u>None</u>	<u>Low/Middle</u>	<u>A-level</u>
<u>Test at 22 mos</u>			
---bottom 25%	15%	53%	32%
---top 25%	8%	49%	43%
<u>Test at 5 years</u>			
---bottom 25%	30%	52%	18%
---top 25%	5%	38%	60%

If we take the test scores at 22 mos, there seems to be a lot of randomness to the subsequent educational outcomes. On the other hand, if we take test scores at age 5, there is a large difference between the overall subsequent educational attainment of the top 25% and the bottom 25%. A 5 year test score can say something about future educational outcomes.

Note: All of these tests do have a margin of error which can depend on anything from what the test subject ate from breakfast that morning to who administered the test.

What are the two main factors behind the test scores:

- 1) Genetics

2) Environment, specifically parental interaction

<u>At 22 mos</u>	<u>Test Percentile, 22 mos</u>	<u>Test Percentile, 118 mos</u>
High SES, high test scores	85%	72%
Low SES, high test scores	85%	40%
High SES, low test scores	12%	60%
Low SES, low test scores	12%	28%

From the above data, we can see that environment is playing a role in children's educational outcomes as parent SES is affecting test scores. Therefore, an intervention may work.

What would a good intervention program look like?

Most conclusions are based on 2 programs.

1) Perry Preschool Program in Michigan

2) ABCDERIAN in North Carolina:

- Program starts at 4.4 months
- Consists of 8 hours of preschool per day, 5 days/week, 50 weeks/year
- Receive iron fortified formula, free diapers, social services home visits
- Continues until kindergarten

How would we evaluate the ABCDERIAN program?

We need a control group as a baseline comparison, randomly chosen from applicants to control for any self-selection bias in the group of applicants.

Problems that we could have with the data:

- Attrition
- Control group families could creep into the treatment group as they pressure the study administrators for access

In the study, there were 57 treatment families and 54 control families, which is a small sample size.

Results:

	<u>Female</u>		<u>Male</u>	
	<i>Control IQ</i>	<i>Treatment IQ</i>	<i>Control IQ</i>	<i>Treatment IQ</i>
<b>Age 5</b>	96.7	+4.9	90.8	+10.19
<b>Age 6.5</b>	93.0	+5.1	92.1	+7.18
<b>Age 12</b>	87.4	+8.5	90.5	+3.21

How do we interpret these results?

- First, we must remember that both the treatment and control groups are comprised of very poor families
- All the differential numbers are positive
- Females benefited more from the program than males did since their advantage over the control group increased whereas it decreased for the males

Ultimately, we need to calculate the rates of return for various early childhood interventions to evaluate them outright and to compare them with elementary and high school aged interventions.

The calculated internal rate of return for the Perry Preschool program is 8%. Comparatively, the Job Corps rate of return is 9%.

**Important questions:**

*-Given the evidence, do these early childhood interventions blow away other educational investments and interventions?*

*-What is the quality of the available evidence on early childhood interventions?*

Freeman Reading: published in 1976

- Focused on analysis of the 1970s job market and projects for the 1980s
- At that time, the economic benefits of attending college were being eroded

Ratio of interest:

(Median earnings of 25-34 year old BAs)/(Median earnings of 25-34 year old HS grads)

Right after Freeman published his book, the ratio exploded.

What happened between 1980 and 1985?

In the 1970s, there was a decrease in demand for college graduates, which resulted in a decrease in the number of college graduates hired and a decrease in their salaries.

In cases where the demand curve shifts inward, there must be a decrease in equilibrium quantity and there may be a decrease in price. The elasticity of the supply curve will determine the magnitude of these changes. In the case of the market for college graduates, the supply is more elastic in the long run than in the short run. In fact, the short run supply is quite fixed since students must decide 4 years before they enter the job market whether or not they will attend college. With an elastic supply curve, changes in demand result in equilibrium quantity changes.