Education and training

On average a University graduate earns 25% more over the lifetime than a non-graduate.

Why?

1) Increased productivity – human capital
   Direct application of schooling to labour market (medical degree)
   Improving access to or ability to use technologies

2) Signalling of inherently higher productivity

Policy question

Is subsidising the cost of higher education a good investment for the government?

Need to know:

1) relationship between education & productivity
2) amount of education investment w/o subsidy
The individual investment decision

Invest if the net present value of benefits exceeds the NPV of costs, i.e. $NPV_B > NPV_C$

$$NPV_B = B_0 + \frac{B}{1+r} + \sum_{t=2}^{T} \frac{B_t}{(1+r)^t}$$

$B$ is the gap in earnings and other benefits between graduates and non-graduates

$NPV_C = C_0$

Diagramatically
Nature of benefits

1. higher income
   on average 25% greater for graduates
2. greater income stability
   graduates more likely to be in long-term jobs
   graduates able to find work faster after displacement
3. non-wage compensation
   less likely to be in unpleasant jobs - “comfort”
   benefits tend to be higher (pensions, etc.)
4. non-pecuniary benefits
   university social life

Nature of the Costs

1. Out of pocket expenses
   Tuition, fees, and living costs
2. Foregone Earnings
3. non-pecuniary costs
   boring lectures

The returns and costs of university education will be individual specific(particularly non-pecuniary)
Determinates of education investment in this model

The following increase the likelihood that an individual will attend university

1. Individual is future-minded (low r)
2. Individual is young (high T)
3. Individual does not expect to leave the labour force (high T)
4. The costs of college decrease (low C)
5. The earnings gap increases (high B) – role of labour demand shifts
6. The individual has access to capital (low r)
Implications of the Model

1) Women invest in less education because of greater propensity to interrupt careers

2) Government policies can provide incentives to invest

   Lower the cost – tuition subsidies
   Increase access to capital markets - loans
   Lower marginal tax rates

3) Income inequality provides an incentive to invest

   High monetary return to being in top portion of the wage distribution

4) Discrimination can effect the incentives to invest
The signalling model – An Alternative Explanation

Higher education has no effect on productivity but signals which workers are productive

Information problem

1. Firms can’t directly determine who are high and low productivity workers
2. Firms observe education levels
3. The cost of getting an education is inversely related to productivity

Intuition of the Model (model to follow next week)
Education does not increase productivity, but distinguishes between “good” and “bad” employees

Firms offer a higher wage to educated workers

In a “separating equilibrium”:

1) the costs of education are higher than the benefits for low productivity workers (do not invest)
2) the costs of education are lower than the benefits for high productivity workers (invest)