Review Notes – Human Capital

- What is human capital?
  - Definition. What are the three major types of human capital?
  - Which is larger – physical or human capital?

- The human capital model
  - This is a cost/benefit model
  - What are the costs of investing in human capital?
    - Direct expenses.
    - Opportunity costs.
    - Psychic losses
  - What are the expected returns?
    - Increases in future earnings
    - Increases in future job satisfaction
  - What else matters?
    - How does time enter into the model?
    - What is the discount rate (r)?
    - What are present values? $PV = B_t/(1+r)^t$ where t represent the years in the future the money occurs.
    - If r > 0 => future benefits are worth less than current benefits.
  - Three different ways to approach the human capital model:
    - Total benefit/cost approach:
      - Invest in human capital if the present value of the benefits > costs of the human capital.
      - Costs = w*hours = lost wages (may be more if other types of opportunity costs)
    - Marginal benefit/cost approach
      - What is MB and MC?
      - What do both look like graphically?
      - What is optimal investment in human capital?
      - How does this optimal level change?
        - If MC ↑ or ↓. What causes MC to change?
        - If MB ↑ or ↓. What causes MB to change?
    - Graphical approach using the demand for College Education as an example
      - What is an age-earnings profile?
      - The Graph has two age-earnings profiles – one for the individual if he goes to college and one if works out of high school.
      - What are costs on the graph? Two kinds.
      - What are benefits on the graph?
      - When does the individual choose to go to college?
      - What is the impact of uncertainty on the decision to invest?

- Predictions of the model
    1. College students will likely be younger. Why?
    2. Present oriented people (with r high) will be less likely to attend college than future oriented people (with r low).
    3. If costs ↑ or ↓ then ceteris paribus human capital investments will ↓ or ↑.
        - Explains why individuals invest more in human capital during recessions (costs decline).
        - Also partially explains the age result – as age increases => foregone earnings increase => costs rise.
        - What is the impact of psychic costs?
    4. If benefits (the earnings differential) ↑ or ↓ then ceteris paribus human capital investments will also ↑ or ↓.
        - What is the impact of uncertainty on investment in human capital? That is, if more uncertain about future returns => what impact does this have upon investment in human capital?

- Age-Earnings Profiles

    - Empirical evidence of age-earnings profiles

        1. Earnings increase with age.
        2. Age-earnings profiles are concave =>largest increases in earnings in earlier years.
        3. Bigger differences by level of education later in life => implies a positive rate of return to education. This is less true for women than for men.
        4. Women are paid less controlling for education and age.
        5. Men's age-earnings profiles are more concave than women's age-earnings profiles.

    - How does the human capital model explain these empirical results?

        - We spent some time discussing the statistical issues involved make sure you know the issues (not the statistical methods just what are the problems and how they are solved).
        - Why are age-earnings profiles concave? Human capital model says that it is because of investment in some form of human capital. Since it is not investment in education it must be investment in some other form of human capital, presumably on-the-job training.

            - What is on-the-job training?
                - Formal training.
                - Learning by doing.
                - Mentoring by more experienced/trained workers.

            - Investments in on-the-job training tend to be more common earlier in one's career (why?).
            - Make sure that you understand the graphical model as well.
                - E_p= potential earnings with on-the-job training (OJT), E_A=actual earnings with OJT, and E_s=earnings with schooling but no on-the-job training. Make sure you know what all three look like graphically.
                - A^* = the overtaking age where $E_A = E_S$. What affects A^*?

        - Why do Age-earnings profiles fan out?

            - Human Capital model says is related to investment in OJT where those with education are more likely to invest in OJT. Why are those with more education more likely to invest in OJT?

        - Women and acquisition of human capital

            - Why do women earn less than men and why do women's age/earnings profiles fan out less?

- Human capital model says related to female less investment in H.C. (why does this make sense?)
  - Does decision not to acquire OJT come from firms or women?
  - Why do women acquire less OJT empirically?
  - Women and education – what has happened over time?

- Is Education a good personal Investment?

  - Cost/Benefit studies

    - Costs average ~$18,000 per year. How are benefits calculated?
    - Real rates of return equal ~5 to 12% annually.
    - Is this a good investment?

  - Biases in the estimates – know each one and the direction of the bias.

    1. Upward bias in the estimates – Are earnings for educated increasing because of the education or because those with more ability and productivity are more likely to be educated?
    2. Downward bias in the estimates – we mentioned 3 possible including that the estimates ignore non-monetary benefits and some monetary benefits (like pensions).
    3. Selection bias – essentially the estimates assumes that age-earnings profiles only vary as education varies but not true and also varies with other variables (i.e., ability). This works both ways => educated person has less aptitude to be a mechanic and would have lower wages as a mechanic and vice versa.

- Is Education a good social investment?

  - Why do we care? (Public Policies)

  - Cost/Benefit approach

    - What are the costs (see tables in book)?
    - Benefits = extra productivity but does education actually increase productivity or does it instead simply signal that a worker has more productivity?

  - Signaling model

    - What are the key assumptions? Note: relate to different levels of productivity, costs of obtaining education, and the usefulness of education as a signal of inherent productivity.
    - Know the results – graphical and otherwise.
    - What is the optimal signal?
    - Signaling vs. human capital model – which is correct?
      - Difficult to tell empirically but possible that both are correct.
      - What is the evidence from cognitive studies?
      - Why do we care? That is, isn't schooling a "good" investment to society regardless?