What is Labour Economics?

- Let’s begin by looking at what economics is in general.
- Study of interactions between decision makers, which occur in markets, for goods and services (or commodities).
- Of particular interest are the determinates of equilibrium prices and quantities of goods exchanged.
What is Labour Economics?

- In a typical free market economy decision makers are of two main types:
  - Households
  - Firms
- Commodities are of two main types:
  - Product (apples, cars)
  - Service (haircuts)

The interaction of decision makers in those markets are related like this:
What is Labour Economics?

- In product markets households provide income to firms in exchange for goods and services like cars and haircuts.
- In factor markets firms provide income to households in exchange for labour and capital (investments).
- Government (G) establishes the environment in which these interactions occur.

What is Labour Economics?

- So this is economics in general, what about labour economics?
- Labour economics is the study of the market for one particular commodity in the economy: 
  **Labour Services**

  The actors in the labour market again include:
  - Households
  - Firms
  - Government
The Actors in the Labour Market

Households make decisions like:
- when to enter the labour market
- how much education or training
- which occupation or industry
- number of hours to work
- whether to quit or retire

Firms choose
- number of workers to hire
- hours of work
- when to layoff or close plant
- pension or retirement policy

Government in the labour Market

Government establishes the environment by:
- providing training
- unemployment insurance
- workers compensation
- pensions
- laws to protect workers and firms
What is labour Economics?

The interactions between these players in the labour market determines:

- the equilibrium price: which is the wage that workers receive.
- the equilibrium quantity: which is the amount of work that people do in the economy.
  - this quantity has several dimensions
    - hours/weeks ⇒ time
    - effort ⇒ efficiency
    - skill ⇒ productivity

Note: What has been said so far may seem incredibly obvious, but there are those who would take issue with it. They would argue:

“labour is not a commodity. A person’s labour is not just something they sell in return for income. Rather, a person’s job, occupation, career are an important aspect of:

- identity
- self-esteem
- prestige
- “Who You Are”
What is labour Economics?

How to respond?
◆ All these things are probably true
◆ However, they do not disprove the fact that labour is something that is bought and sold in a modern capitalist economy
◆ Price is set by demand and supply
◆ Example: Increased demand for housing in Victoria has led to an increase in demand for trades
◆ The result is an increase in trade wages
◆ We might wish it wasn’t so but in our society it is a commodity that is traded in markets.

Why study economics of labour?
◆ If labour is just another commodity and can be analyzed just like any other, why do we need a special course/subfield of economics?
◆ We don’t have a special subfield of economics for each commodity.
  e.g. Banana Economics
◆ Why for labour?
◆ The main reason is the importance of the labour market.
The Importance of the Labour Market

- For virtually all households in the economy, the sale of their labour services constitutes, by far, their major source of income.
- The price of the goods that they sell is the main determinant of their economic well being.
- Thus, to understand the distribution of income in society - who earns what and why - we need to understand labour markets, how wages are determined, etc.

Secondary reason:
- Like every commodity labour has a number of special features/peculiarities that must be taken into account in a more in-depth analysis.
- Each of these features has important implications for how labour markets work and for prices and quantities.
Special Features

For example:

<table>
<thead>
<tr>
<th>Labour Market</th>
<th>Consumer Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>household is seller</td>
<td>household is purchaser</td>
</tr>
<tr>
<td>firm is purchaser</td>
<td>firm is seller</td>
</tr>
<tr>
<td>Wage</td>
<td>Price</td>
</tr>
</tbody>
</table>

- reflects investment in education
- compensation for risk
- discrimination

How do we study the economics of labour?

1. **We can construct models of behaviour**
   - Use same tools that economists use to study other goods (e.g., bananas, haircuts, GM stock, metal stamping machinery)
   - Can use standard tools of economics “micro theory” (budget constraints, indifference curves, etc.)
   - Can represent the interactions between the factors in markets by supply and demand curves (get equilibrium price and demand)
How do we study economics of labour?

2. We can test models of behaviour
- Test the ability of our models to explain various facts about labour markets by testing against real data from labour markets
- Typically use statistical analysis including regression procedures
- If the model doesn’t fit it is rejected or revised.

Basics – The Supply and Demand Model
- Labour is just applied microeconomics so we can simply apply knowledge from Introductory Economics.

Neoclassical Supply and Demand Analysis:
- Don’t usually look at all workers and firms because they are not homogeneous.
- Instead look at the market for burger flippers (for example).
- Assumes competition
- Results in the familiar equilibrium \((w^*, q^*)\)

Allows economists to predict what will happen to wages and employment when:
- Labour market policy or market conditions change
- Or even when our underlying assumptions change
Basics

Recall that we need to distinguish between shifts and movements along the curves.

Demand Shifters?
- technology
- capital prices
- demand for output

Supply Shifters?
- population
- unearned income
- wages in other markets
- job conditions

Subject Matter of Labour Economics

- With this model in mind, what do labour economists study?
- Simply, factors that influence labour supply, demand and their interaction

**Labour Supply** includes population growth, participation and education decisions

**Labour Demand** includes factors that influence labour costs like minimum wages and output prices like free trade

**Market Outcomes** are also studied
- This includes the degree of competition, unemployment and unions
Empirical Work

We will encounter many applications of econometrics.

- The basic goal is to uncover relationships in the data

Labour market examples:

1. Minimum wages and jobs
2. Immigration and native employment
3. Years of education and earnings

Problem: The labour market is not an experimental laboratory

- i.e. We can’t change just one factor (say education) and hold everything else fixed (“ceteris paribus”)

- Labour economists deal with this in many ways

Data – the starting point

Labour economists use a wide variety of data sets

1. Aggregate or time-series data
   - Economy wide
   - Usually reported over time
   - Examples: GDP, Unemployment rate, Inflation rate
     - CANSIM
2. Cross-section micro-data
   - Looking across individuals at a point in time
   - Examples: earnings, education level, hours of work
     - Survey of Consumer Finances (SCF) *now (SLID)
     - Labour Force Survey – monthly (LFS)
     - Census data
Data – the starting point

3. Panel or longitudinal data
   - Follow individuals over time
   - i.e. cross-section over multiple periods
   - Allows researchers to compare the same individual before and after some “change”
   - Holding more variables constant
     - Labour Market Activity Survey (LMAS)
     - Survey of Labour and Income Dynamics (SLID)

Regression Analysis

- Regression analysis allows researchers to uncover relationships in the data with some ability to hold other factors fixed
  Example: How much do earnings increase with another year of education?
  Plotting the data might look like this:
Regression Analysis

Earnings = a + b*years education

• If this relationship was exactly true all of the data points would lie on the line
• Of course it isn’t exactly true as many other factors also influence earnings
• Could lump all of these factors together
Earnings = a + b*years education + e (error or residual)

• The “best” line to the data is the one that minimizes these errors
• In fact minimizes the sum of squared errors – called ordinary least squares (OLS)
Controlling for “other” factors

- We don’t get the ceteris paribus effect of education on earnings by lumping all of the other factors into the error term.
- Regression analysis allows us to control for all of the other things we think should affect earnings by including them on the right-hand side.
- We can think of some of these things as being shifters of this line.
  Example: suppose we think gender has an impact on earnings (reasonable assumption)
  - We could include a “dummy variable” (0-1) in the equation
    $= 0$ if male
    $=1$ if female
  
  Earnings $= a + b \times$ years education $+ d \times$ female $+ e$

- This just shifts the regression line up (+) or down (-)

Non-Linear Relationships

- What if you don’t think the relationship is linear?
  - could take logs
  - use polynomials on RHS, etc.
- Example: 1 additional year of education may raise earnings by 10%
- Adding additional years of education will increase earnings exponentially (just like interest that is compounding)
- Thus, a plot of earnings against years of education will be non-linear
- However, a plot of log earnings against years of education will be linear

Note: this changes the interpretation of $b$

- $b =$ the percentage change in earnings due to an additional year of schooling
Statistical Significance

The estimate of $b$ (or any coefficient) we obtain from OLS are estimates with a margin of error. Thus, most articles will report coefficients and either standard errors or t-statistics. We could use this information to formulate a p-value. Gives the probability that OLS would result in an estimated coefficient of $b$ if the true relationship is $c$. Usually think of $c$ (the null hypothesis) as being zero. i.e. What is the probability of estimating the coefficient $b$ when there really is no relationship between earnings and education.

If this probability is “LOW”:
“The coefficient is statistically significantly different from zero” or “significant”

Usually willing to live with a 5% chance of getting $b$ if it is actually 0.

Rule of thumb:
1. If the coefficient is twice the size of the standard error it is “significant”.
2. t-statistic = coefficient/standard error - so if it is 2 or more “significant”.
Problems in Estimation

Impossible to hold everything else equal.
- data
- how measure?

How important are omitted variables?

Earnings-Education example:
- suppose there is something we can’t observe that is related to earnings.

If unrelated to education: no problem

Shift Variable:
- simply estimate a line between the two
- still get slope right

If related to education: problem
e.g. Ability

High Ability = High Earnings
High Ability = High Education

- We observe high ability, high educated workers and low ability, low educated workers.
- Not knowing that there should be two separate lines for high ability and low ability workers.
- We estimate too steep of a line “omitted Variable Bias”.

Professor Schuetze - Econ 370