2. Applying and Extending the Labor Supply Model

Non-Labor Income

- At a wage rate of $10/hour with no other income, the optimal hours of leisure is 16 (8 hours of work) at point $U_1$. 
- If the person gets an inheritance that generates $60 a day of non-labor income, the budget constraint has a parallel shift. The optimal hours of leisure rise to 17 at point $U_2$.
- With an increase in non-labor income, only the income effect occurs and so hours work must fall.

Non-Participants

- If a person has a low wage rate (WN is flat), higher non-labor income (NH), or steep indifference curves (I1), he is less likely to participate in the labor force ($U_1$).
- If a person has a high wage rate (HW), low non-labor income (0), or flat indifference curves (I2), she is more likely to participate ($U_2$).
- The reservation wage is the lowest wage necessary to induce someone to work.
- College students are less likely to participate in the labor force than other persons. Why?

Over-Employment

- If an individual is free to choose the number of hours of work, she would choose point $U_1$ with 18 hours of leisure and 6 hours of work.
- If the individual is constrained to work a standard workday of 8 hours or not all, she will choose point $U_2$.
- At $U_2$ her MRS is more than the wage rate and so she feels overemployed.
- What is a potential solution to her overemployment situation?

Under-Employment

- If an individual is free to choose the number of hours of work, she would choose point $U_1$ with 14 hours of work and 10 hours of leisure.
- If the individual is constrained to work a standard workday of 8 hours or not all, she will choose point $U_2$.
- At $U_2$, her MRS is less than the wage rate and so she feels underemployed.
- What is a potential solution to her underemployment situation?

Income Maintenance Programs

- There are a variety of income maintenance programs such as food stamps, Medicaid, Temporary Assistance to Needy Families.
- We will examine the work incentives of such programs.
**Income Maintenance Program Features**

- **Income Guarantee (B)**
  - Benefit received if individual/family has no earned income.
- **Benefit Reduction Rate (t)**
  - Rate by which the benefit is reduced as income is increased.
  - At t=0.5, benefits are reduced by $.50 for every dollar earned.
- **Break-Even Level of Income (Yb)**
  - The level of earned income at which the individual/family receives no benefit.

**Benefit Example**

The actual subsidy payment S illustrates these concepts as shown below.

\[ S = B - tY \]

If \( B = 80 \), \( t = 0.5 \), earned income \( (Y) = 60 \) then:

\[ S = 80 - 0.5 \times 60 = 50 \]

**Benefit Example**

The break-even level of income formula is shown below:

\[ Y_b = \frac{B}{t} \]

If \( B = 80 \), \( t = 0.5 \), then \( Y_b = 160 \)

**Income Maintenance Program**

- At a wage rate of $10/hour, the optimal hours of leisure is 16 (8 hours of work) at point \( U_1 \).
- If there is a welfare program started with a \( B \) of $80 a day, \( t = 0.5 \), then \( Y_b = 160 \).
- The income effect (IE) is measured through a parallel shift of the old budget constraint. The IE is from \( U_1 \) to \( U_2 \) (from 16 to 18 hours of leisure).
- The substitution effect (SE) is measured by movement along \( I_2 \). The SE is from \( U_2 \) to \( U_3 \) (from 18 to 22 hours of leisure). The tax lowers the “price” of leisure.
- In contrast to a wage change, both the IE and SE reduce desired hours of work.