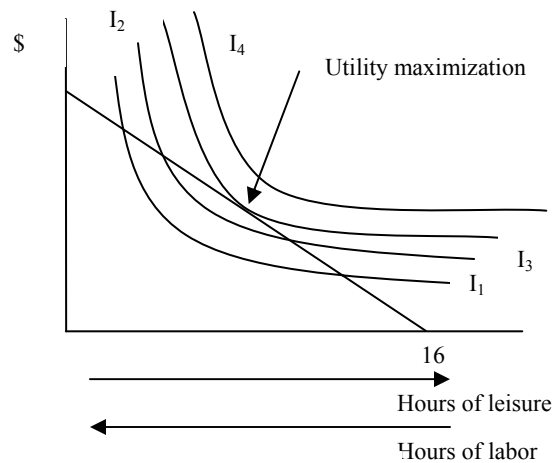


Review Notes – Supply of labor

- Labor Force Participation Rates
 - What has happened to them for total LFPR and for sub-groups of the population in the past 50 years?
 - International LFPR.
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- Why do individuals supply labor?
 - Labor as a consumption good
 - Labor supplies both wage income and utility. What are the implications of this view?
 - Labor as an investment good
 - Labor supplies wage income while leisure is a good that supplies utility.
 - What is the labor/leisure tradeoff?
 - What are the two interpretations of the wage rate?
 - What does an individual's supply of labor curve look like? That is, as wages rise what happens to the quantity supplied of labor?
 - The income effect – as $w \uparrow \Rightarrow$ income rises \Rightarrow individual responds by consuming more leisure (normal good) \Rightarrow quantity supplied of labor \downarrow .
 - The substitution effect – as $w \uparrow \Rightarrow$ leisure becomes more costly compared to its substitutes \Rightarrow individual decreases consumption of leisure and increases consumption of leisure's substitutes (which are?) \Rightarrow quantity supplied of labor \uparrow .
 - Which effect is largest? This is an empirical question and the answer is...backward bending supply of labor curves. Make sure you know which effect is largest when wages are low and when wages are high.

- The Labor/Leisure choice
 - Use indifference curve analysis where on one axis is hours of leisure per day (to a max of 16) and on the other axis is income in dollars per day. Use graph 1 to the right to illustrate the problem:

- Assume 16 hours per day for labor/leisure. What are the remaining hours for?
- How is labor and leisure measured?
- What is the budget line? What is the budget line's slope? Suppose the wage rate changes \Rightarrow what happens to the budget line?
- Notice the utility maximization point is the tangency between indifference curves (I_3) and the budget line.



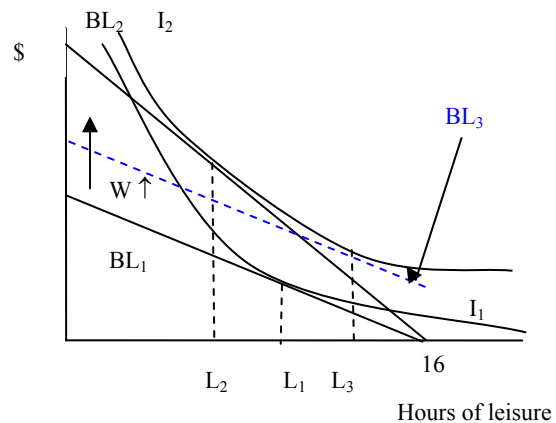
Graph 1

- What does the decision not to work look like, graphically?
 - Reservation wages. What is it? How is the reservation wage shown graphically?
- Suppose the individual has non-labor income => what happens to the budget line and the labor/leisure choice?

- Income and Substitution Effects

- Suppose the wage rate increases => what happens to the labor leisure choice?
 - Recall from above that two possible impacts as wages rise.
 1. Hours worked increases and hours in leisure decreases => substitution effect dominates.
 2. Hours worked decreases and hours in leisure increases => income effect dominates.
 - Look at each of these two possibilities individually and separate out the two impacts, the substitution effect and the income effect.

1. Graph 2 shows the substitution effect dominating.
 - The wage increases rotating the budget line upward from BL_1 to BL_2 .
 - The individual moves from the old tangency of I_1 at L_1 to the new tangency of I_2 at L_2 .
 - Leisure decreases from L_1 to L_2 (how do we know labor increases?). This is the total impact from the wage increase.

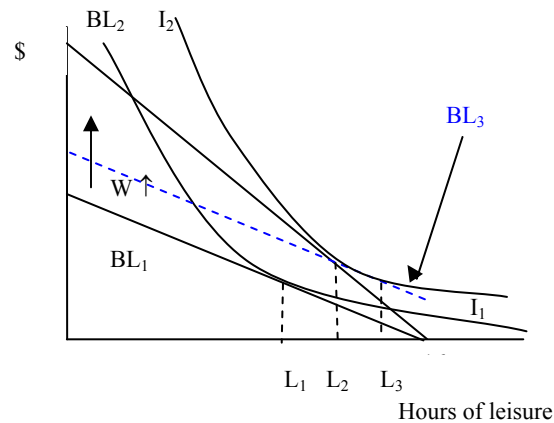


Graph 2

- To estimate only the income effect related to this wage increase shift the original budget line (BL_1) so that the new budget line (BL_3 the blue dotted line in Graph 2): (1) is tangent to the new indifference curve (I_2) and (2) the wage rate remains the same (i.e., the slope is the same) => give them more income not a higher wage.

- We end up with the following results:
 - As noted above the actual change in hours of leisure is from L_1 to L_2 . This is the total effect.
 - The tangency point between BL_3 and I_2 yields L_3 so the change from L_1 to L_3 is the income effect.
 - The remaining distance must equal the substitution effect = L_3 to L_2 .

2. Graph 3 shows the income effect dominating
 - The total impact still equals L_1 to L_2 .



Graph 3

- The tangency point between BL_3 and I_2 yields L_3 so the change from L_1 to L_3 is the income effect.
 - The remaining distance must equal the substitution effect = L_3 to L_2 .
 - Notice that hours of leisure rise and that the substitution effect is now smaller than the income effect.
- Which of the two effects is stronger?
 - The income effect is stronger when a given change in wages has a larger impact on income => income effects are larger, all else equal, as hours worked increases.
 - There is no income effect at all when hours worked equals zero => participation decisions must have a dominant substitution effect.
 - Empirical evidence on income and substitution effects
 - Make sure you understand the theory's predictions re: the direction of income and substitution effects.
 - Empirical work uses both cross-sectional data (what's that?) and time series data (what's that?) and uses multiple regression analysis to control for other relevant factors.
 - Cross sectional results
 1. Men, especially 25-55, have small income and substitution effects (why?)
 2. Married women have larger effects (why?) with a dominant substitution effect (why?)
 3. The directions of both are as predicted.
 - Time Series results
 1. Income and substitution effects are both important in explaining labor supply decisions.
 2. The directions of both are as predicted.
 3. The magnitude of both are smaller in the last 40 years => S_L less responsive to changes in wages (why?).
 4. Studies of older men also find dominant substitution effect (why?)
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- Public Policy Applications
 - The labor supply model is a powerful tool for examining the likely outcome of different types of public policies on labor supply decisions. Keys to using the model to analyze public policies include:
 1. You must understand the impact that the policy has upon an individual's budget line.
 2. Given the impact on the budget line, what is the likely impact on the person's labor supply decision? That is, where will the person's likely tangency be between the new budget line (after the policy is implemented) and the person's indifference curves?
 3. What are the problems with the policy? Does it give the person an incentive not to work?
 4. What types of changes to the policy might be made to solve the problems in 3?
 - We did the above steps for two specific public policy applications. Make sure you know them, specifically.
 1. Social insurance programs like worker's compensation and unemployment insurance.
 2. Guaranteed income levels (in order to avoid poverty) like AFDC (Aid for Families with Dependent Children).
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