



ECON 310 - MACROECONOMIC THEORY

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Disclaimer

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<http://www.aw-bc.com/williamson>

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Representative Consumer

- Assume whole population can be described by a *representative consumer*
- The representative consumer makes a decision concerning a general good called 'consumption' and leisure.
- Metric to measure happiness - call it utility
- The representative consumer gets utility from consumption and leisure:

$$U(C, l)$$

- Suppose two bundles (C_1, l_1) and (C_2, l_2) - bundle 1 is strictly preferred if:

$$U(C_1, l_1) > U(C_2, l_2)$$

- indifferent if:

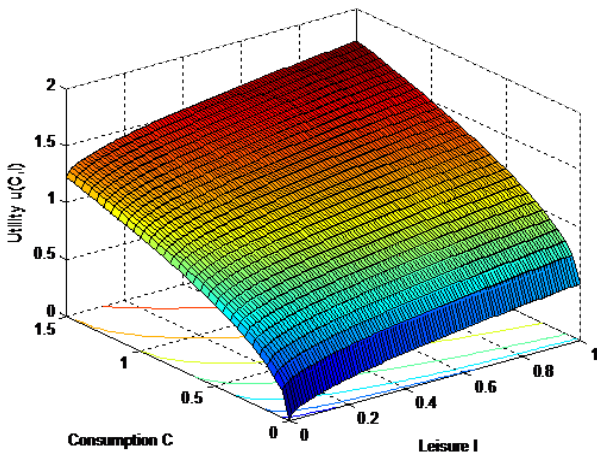
$$U(C_1, l_1) = U(C_2, l_2)$$

Representative Consumer (cont.)

- Note: levels don't really matter just preference ordering
- Remember 3 properties of utility curves:
 - 1 More is preferred to less. That is, u is increasing in C and I .
 - 2 Diversity in consumption.
 - 3 Consumption and leisure are normal goods (i.e. increase in these variables in income increases). Not inferior goods

An example of Indifferent Curves

$$U(C, l) = c^{\frac{1}{2}} + \frac{1}{2}(l)^{\frac{1}{2}}$$



Contour Plot

Indifferent Curve is locus of all (C, I) points giving the same utility level

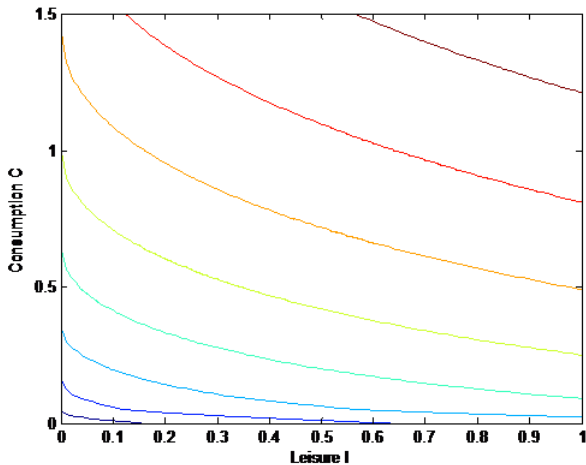


Figure 4.1: Indifference Curves)

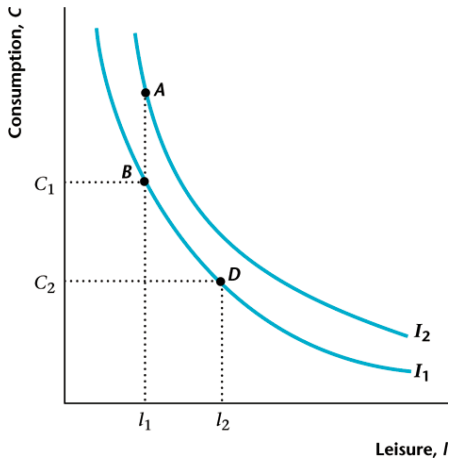


Figure 4.2: Properties of Indifference Curves

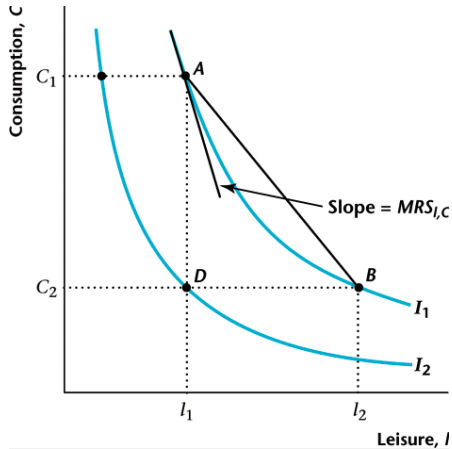


Figure 4.3: Budget Constraint ($T > \pi$)

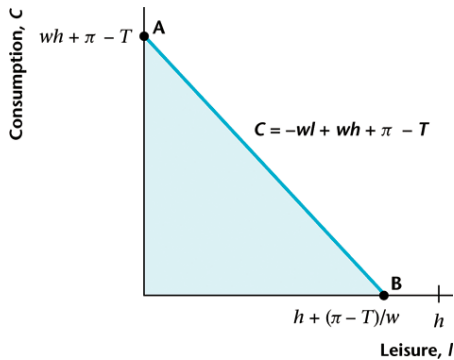


Figure 4.4: Budget Constraint ($T < \pi$)

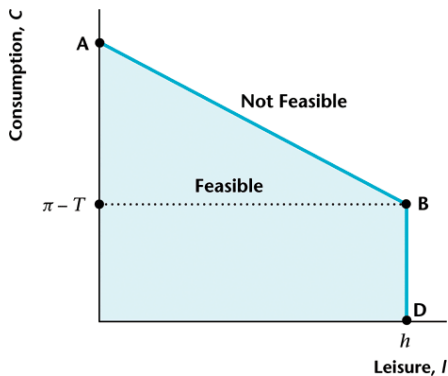


Figure 4.5: Consumer Optimization

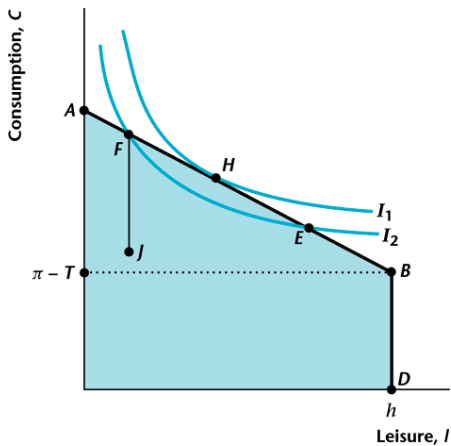


Figure 4.6: Corner Solution no work!

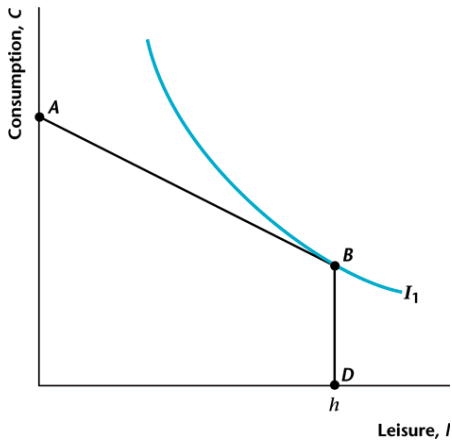


Figure 4.7: Increase in $\pi - T$

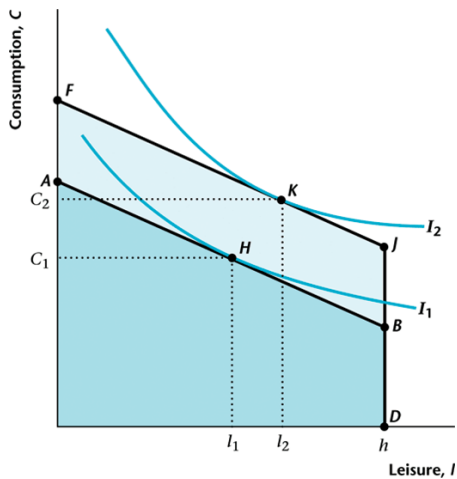


Figure 4.8: Effect of a Increase in the Wage

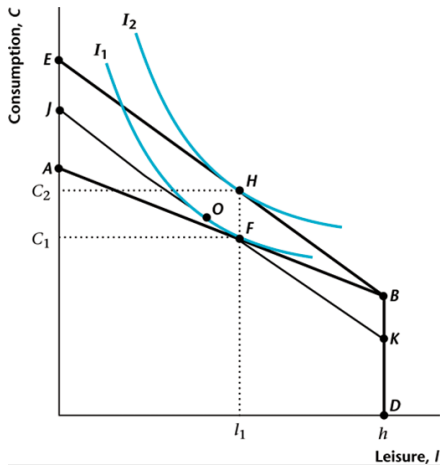


Figure 4.9: Labor Supply

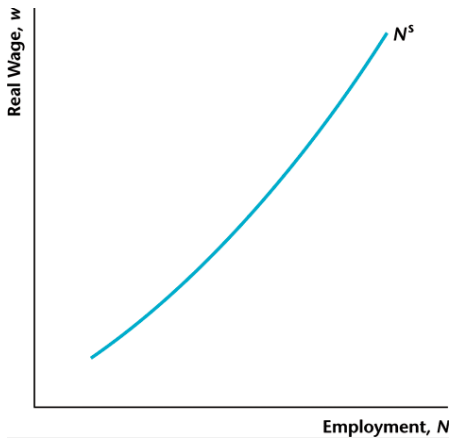


Figure 4.10: Increase in π or decrease in T

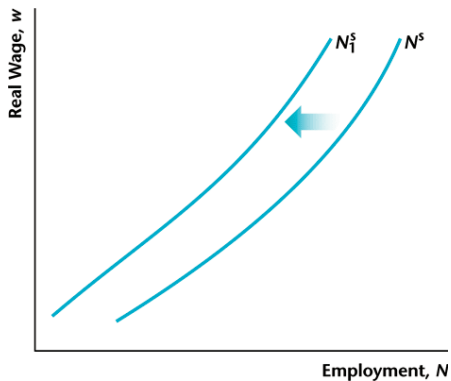
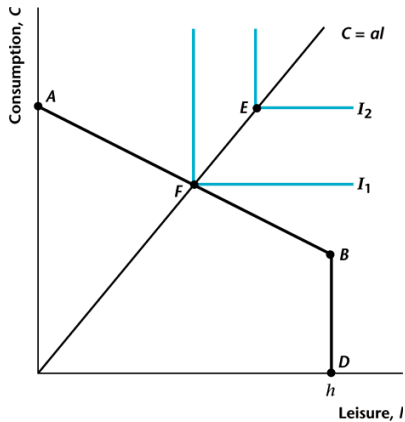


Figure 4.11: Perfect Complements



Why do Americans work so hard?



Production Function

- We'll assume that firms use two broad factors of production, capital and labor.
- Output is produced according to a **production function**:

$$Y = zF(K, N^d)$$

- z : total factor productivity - higher is z , the higher is MPN and MPK .
- K : amount of capital the firm hires
- N^d : amount of labor the firm hires

Figure 4.12: Production Function and MPN

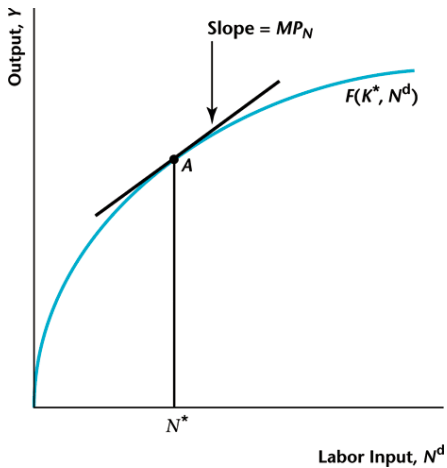


Figure 4.13: Production Function and MPK

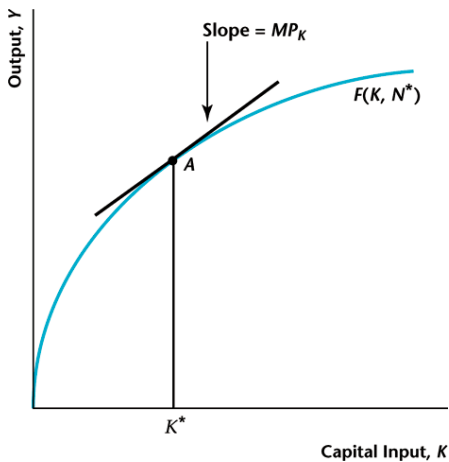


Figure 4.14: MPN Labor Schedule

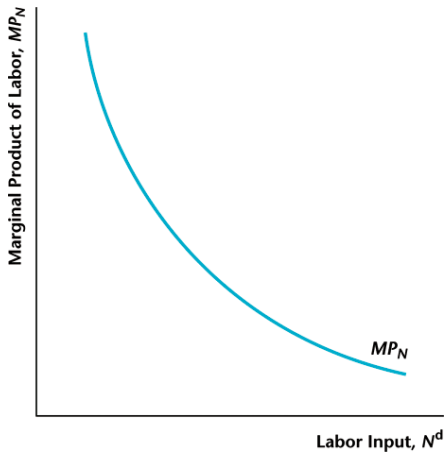


Figure 4.15: Adding Capital increases MPN, KSC

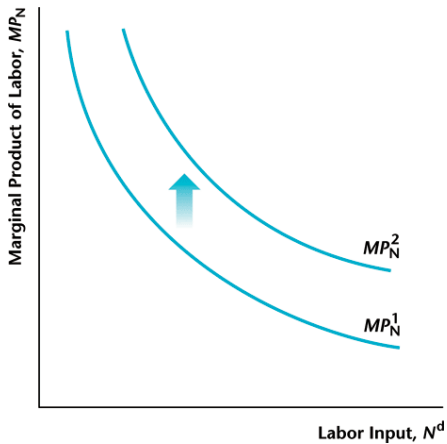


Figure 4.16: Increases in TFP

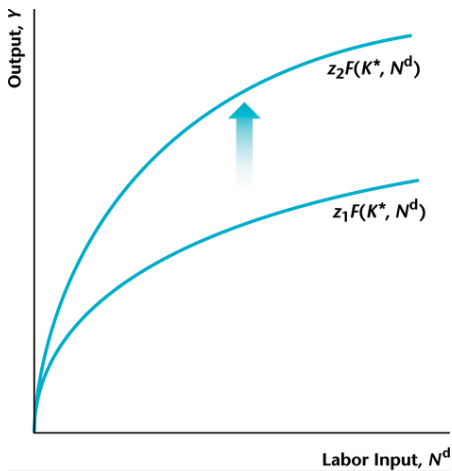


Figure 4.17: Effect increases in TFP on MPN

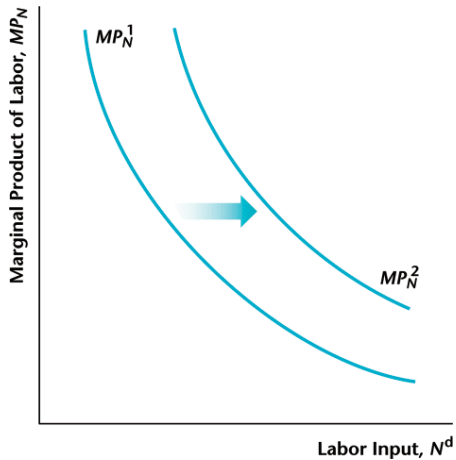


Figure 4.18: Solow Residual

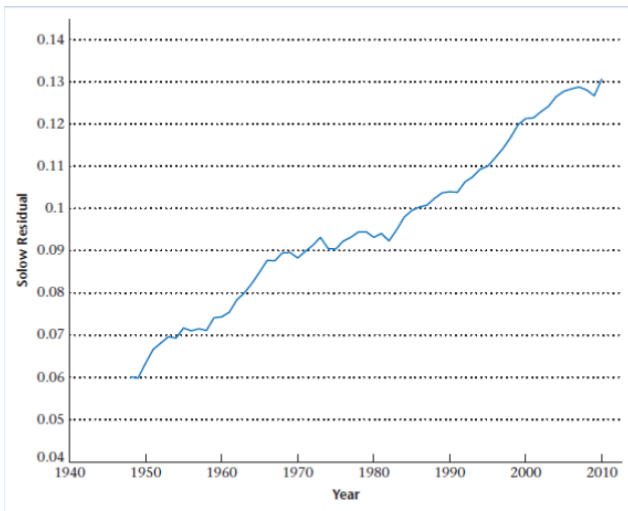


Figure 4.19: Profit Maximization

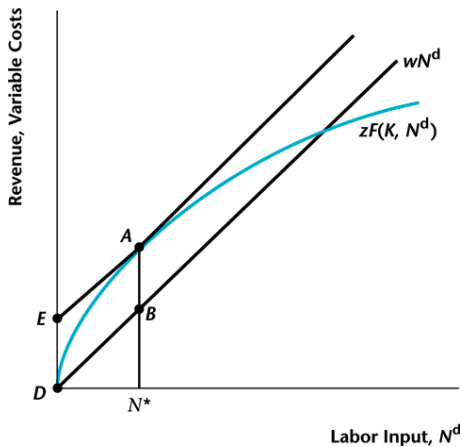


Figure 4.20: $MPN = N^d$

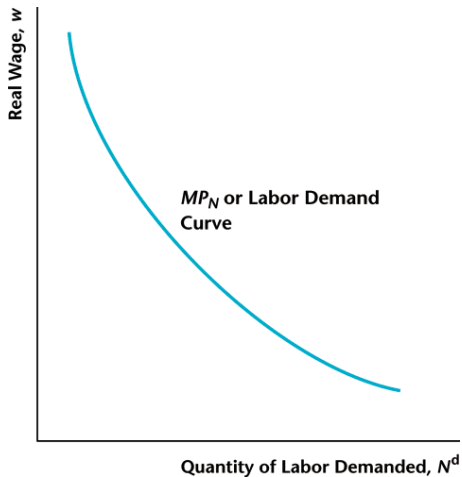


Figure 4.21: Average Labor Productivity

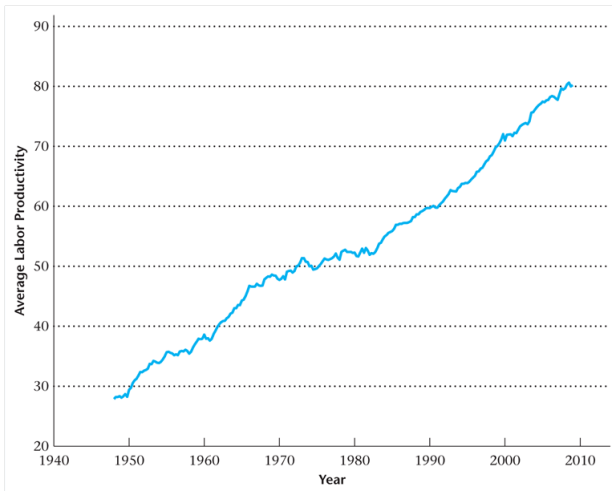


Figure 4.22: Percentage Deviations from Trend in Average Labor Productivity

