Analyzing the Labor Market

**Key Concepts:**

- Profit-maximizing firms hire labor as long as each additional unit of labor increases the firm’s total revenue more than the unit of labor increases costs.
- The supply of labor is determined by households in response to wages and can have both substitution and income effects.
- Equilibrium wage and quantity demanded change in response to shifts in either supply or demand.

The demand for labor is a firm’s MRP curve. The graph shows the relationship between the wage rate and the quantity of labor that a firm demands. The curve slopes downward because of diminishing marginal product. Recall that \( MRP = MR \times MP \). As MP falls, MRP has to fall.

The slope of the MRP is related to elasticity of demand for labor. When the demand for labor is highly elastic, a small change in the wage rate causes a large change in the quantity of labor demanded, as on the left.
If the demand curve (MRP) is inelastic, as on the left, a large increase in the wage rate causes a small change in the quantity of labor demanded.

**Recall:** elasticity of demand for labor equals % change in quantity of labor demanded/% change in the wage rate.

The demand for labor can also shift if there are changes in technology or capital increases labor productivity or the price of the firm’s product increases. If the price of the firm’s product increases, each employee would now add more to the firm’s total revenue than before, because MR = P.

To get the market demand for labor, horizontally sum the demand curves for each firm in the market. However, to analyze a change in the market wage rate, examine the box on the left. Notice that the analysis is not exactly the same as analyzing a change in price in a product market because the MRP for each firm curve shifts.

Because households tradeoff between labor and leisure, the may be subject to both the **income effect** and the **substitution effect**. The substitution effect predicts that as wage rates increase, households supply more labor, substituting more labor for leisure. The income effect predicts that as wage rates increase above a certain point, households may want to forgo more income for more leisure time. This would create the backward-bending part of the labor supply curve.
The substitution effect usually is stronger than the income effect, so the labor supply curve is almost always depicted as on the left. The labor supply curve can shift if households decide that they prefer to work more than have leisure at any wage rate. The shift on the left is an increase in labor supply. The supply curve could also decrease.

The labor market is much like any other competitive market. The wage rate, on the vertical axis is the price for labor. The market establishes an equilibrium wage rate and quantity of labor supplied.

If the demand for labor were to shift, the market would establish a new equilibrium wage rate and quantity supplied.

On the left, the demand for labor has increased increasing the equilibrium wage rate and increasing the equilibrium quantity.

The supply of labor could also shift as on the left. Once again, the labor market establishes a new equilibrium wage and quantity.