

Chapter 18: The Markets for the Factors of Production
Principles of Economics, 8th Edition
N. Gregory Mankiw
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1. Introduction

- a. *Why do people have different earnings?*
 - i. *While it is popular to view earnings as being just fate (aren't we all victims) or discrimination, supply and demand has a significant influence.*
 - ii. *Education is important because it increases productivity (and as we will see demand), but it also tends to limit the supply in any category of labor.*
 - (1) *No surprise, education tends to lead to a higher income.*
 - iii. *Three fourths of national income is paid in the form of wages and fringe benefits.*
 - (1) *Much to the rest is a result to savings from wages.*
 - iv. *The demand for the factors of production is a derived demand.*
 - v. *The factors of production are the inputs used to produce goods and services.*
P. 362.
 - (1) *Tradition has divided the factors of production into land, labor and capital, although their description is much more complicated than that.*
 - vi. *This chapter only deals with competitive firms.*

2. The Demand for Labor

- a. *Labor markets are different from most other markets because labor demand is a derived demand.*
- b. **Figure 1: The Versatility of Supply and Demand. P. 363.**
- c. *The Competitive Profit Maximizing Firm*
 - i. *Two assumptions:*
 - (1) *There is competition in both the product and input markets.*
 - (2) *The firm is a profit maximizer.*
 - ii. *The Production Function and the Marginal Product of Labor*
 - (1) **Table 1: How the Competitive Firm Decides How Much Labor to Hire. P. 364.**
 - (2) *Production function is the relationship between quantity of inputs used to make a good and the quantity of output of that good. P. 364.*
 - (3) *Marginal product of labor is the increase in the amount of output from an additional unit of labor. P. 364.*
 - (4) *Diminishing marginal product is the property whereby the marginal product of an input declines as the quantity of the input increases. P. 364.*
 - (5) **Figure 2: The Production Function. P. 365.**
 - iii. *The Value of the Marginal Product and the Demand for Labor*
 - (1) *Value of the marginal product is the marginal product of an input times the price of the output. P. 365.*
 - (a) $VMP_l = MP_l * P_x$

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- (b) **Figure 3: The Value of the Marginal Product of Labor. P. 366.**
 - (c) **FYI: Input Demand and Output Supply: Two Sides of the Same Coin, P. 367.**
 - (2) A competitive, profit-maximizing firm hires workers up the point where the value of marginal product of labor equals the wage.
 - (3) The VMP_l is the labor demand curve for a competitive profit maximizing firm.
 - iv. What Causes the Labor Demand Curve to Shift?
 - (1) The Output Price
 - (2) Technological Change
 - (a) Between 1960 and 2015, the amount of output a typical US worker produced in an hour rose by 195 percent.
 - (b) Not all workers benefit from technological change.
 - (1) The Supply of Other Factors, since inputs tend to be complementary.
3. The Supply of Labor
 - a. The Tradeoff between Work and Leisure can result in a backward bending supply curve of labor.
 - i. *The change in the wage has two effects:*
 - (1) *A substitution effect as the higher wage increases the cost of leisure and reduces the demand for it.*
 - (2) *An income effect as the higher wage increases income and the demand for leisure as it is a normal good.*
 - (3) *For a positively sloped supply curve of labor, the substitution effect has to dominate the income effect.*
 - ii. *That is discussed in Chapter 21.*
 - b. What Causes the Labor Supply Curve to Shift?
 - i. Changes in Tastes
 - (1) *Mankiw discusses the increase in the labor force participation of women as a change in tastes.*
 - (2) *The increase in the labor force participation rate of women is also a response to the increase in the opportunity cost of working in the home.*
 - (3) *My research suggests that the uncertainty of marriage and unilateral divorce also has had a significant effect on the incentives for married women to work.*
 - ii. Changes in Alternative Opportunities
 - (1) This affects each market.
 - iii. Immigration
 - (1) **Ask the Experts: Immigration, P. 369.**

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- (2) **US Citizens benefit for highly educated immigrants.**
 - (a) **0% disagree,**
 - (b) **5% are uncertain and**
 - (c) **95% agree.**
 - (3) **US citizens benefit from low skilled immigrants**
 - (a) **19% disagree,**
 - (b) **27% are uncertain and**
 - (c) **63% agree.**
 - (4) **Low skilled American workers are hurt by low skilled immigrants**
 - (a) **11% disagree,**
 - (b) **29% are uncertain and**
 - (c) **60% agree.**
4. Equilibrium in the Labor Market
 - a. We have established two facts:
 - i. The wage adjusts to balance the supply and demand for labor.
 - ii. The wage equals the VMP_l.
 - b. Any event that changes the supply or demand for labor must change the equilibrium wage and the value of the marginal product by the same amount, because these must always be equal.
 - i. **Figure 4: Equilibrium in a Labor Market. P. 370.**
 - (1) *Rent is a term used in economics for the difference between what a factor of production is paid and what is necessary to make it available.*
 - (2) *Either because of opportunities or preferences, all the workers to the left of equilibrium are earning rents.*
 - (3) *Are you one of those people?*
 - ii. Shifts in Labor Supply
 - (1) **Figure 5: A Shift in Labor Supply. P. 371.**
 - iii. **In the News: The Economics of Immigration, P. 372.**
 - iv. Shifts in Labor Demand
 - (1) **Figure 6: A Shift in Labor Demand. P. 372.**
 - c. **Case Study: Productivity and Wages, P. 373.**
 - i. From 1959 to 2012, productivity as measured by output per hour grew by 2.1 percent per year.
 - ii. This is an important point that goes back to Adam Smith but is often ignored.
 - (1) Some people--erroneously--argue that the overall wages in a society can be increased by labor unions or protectionist policies.
 - (2) Productivity is the key to a high standard of living.
 - iii. **Table 2: Productivity and Wage Growth in the United States. P. 374.**

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- iv. Key determinants of productivity are:
 - (1) physical capital,
 - (2) human capital, and
 - (3) technological knowledge.
 - v. **FYI: Monopsony, P. 386.**
5. The Other Factors of Production: Land and Capital
- a. *We will probably not spend much time with this section.*
 - b. Capital is the equipment and structures used to produce goods and services. P. 375.
 - c. Equilibrium in the markets for land and capital
 - i. Labor, land and capital each earn the value of their marginal contribution to the production process.
 - ii. The rental price is the price a person pays to use that factor for a limited period of time.
 - (1) **Figure 7: The Markets for Land and Capital. P. 375.**
 - iii. **FYI: What is Capital Income?, P. 376.**
 - (1) Investors are paid with interest, dividends or appreciation in the value of the stock.
 - d. Linkages among the Factors of Production
 - i. An event that changes the supply of any factor of production can alter the earnings of all the factors.
 - ii. **Case Study: The Economics of the Black Death, P. 377.**
 - (1) *This is one of the few examples of the “dismal science” giving a positive reading to a negative event.*
6. Conclusion
- a. This has been the neo-classical theory of the distribution of income based on their relative productivities.
7. Summary